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DEPARTMENT OF COMMERCE AND INDUSTRIES

DIVISION OF FISHERIES

INVESTIGATIONAL REPORT No. 37

THE SOUTH AFRICAN PILCHARD
(Sardinops ocellata)

AND MAASBANKER
(Trachurus trachurus)

HYDROGRAPHICAL ENVIRONMENT AND THE COMMERCIAL CATCHES, 1950-57.

BY

M. E. L. BUYS, M.Sc.

(Senior Professional Officer)

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Contents.

	PAGE.
1. Summary	5
2. Introduction	5
3. Research Area	5
4. Method	5
5. Annual Variations—	
A. Research area as a whole—	
(i) Temperature	7
(ii) Salinity	9
B. Outer area—	
(i) Temperature	10
(ii) Salinity	11
C. Intermediate area—	
(i) Temperature	11
(ii) Salinity	11
D. Coastal area—	
(i) Temperature	12
(ii) Salinity	12
6. Average Seasonal Variations—	
A. Temperature cycle	13
B. Salinity cycle	13
7. Seasonal Values of Temperature and Salinity—	
A. Routine area	14
B. Outer area	15
C. Intermediate area	16
D. Coastal area	18
8. Seasonal Changes and T–S Relationships—	
A. General	20
B. Outer area	21
C. Intermediate area	22
D. Coastal area	22
9. The Effect of Varying Environmental Conditions on the Fishery—	
A. General	24
B. Factors which can determine the availability of fish	24
C. Variation of the total catches made in a catch year	24
D. Environmental factors and the catches	25
10. Statistical Analysis—	
(*a*) Pilchard catches and the temperature of the outer area	27
(*b*) Maasbanker catches and the temperature of the intermediate area	27
(*c*) Discussion	28
11. Conclusions	30
12. Acknowledgments	30
13. Bibliography	31
14. Annexure—	
Tables (1–25)	32
Plates (1–43)	104

1. SUMMARY.

This report deals with the annual and seasonal variations in temperature and salinity in the 0–50 metres layer of the sea over the continental shelf in the St. Helena Bay area for the seven-year period extending from September, 1950, to August, 1957.

Certain distinctive seasonal changes which occur in the characteristics of these waters are discussed and investigated with the aid of the T–S diagram.

Relationships which were found during this period between the environmental temperature as an annual average and the pilchard (*Sardinops ocellata*) and maasbanker (*Trachurus trachurus*) catches of the ensuing year, are then indicated. Additional work will have to be done to test this relationship still further and to determine its significance before the results of the findings can be applied in the conservation policy.

2. INTRODUCTION.

The total pilchard (*Sardinops ocellata*) and maasbanker (*Trachurus trachurus*) catches vary considerably from year to year and from one season to another, as is evident from the combined returns of the various factories which process these species of fish. It is found, for example, that a maximum quantity of approximately 179,400 short tons of pilchards was caught in the commercial year 1951/52 in comparison with a minimum catch of only 91,800 short tons of pilchards in the 1955/56 commercial fishing year. In so far as the seasonal pilchard catches are concerned, the autumn catch is the largest while the summer catch is the smallest. Maasbanker catches are at their best in summer and autumn, but good catches have on occasion also been made in other seasons. Owing to the ban imposed on pilchard and maasbanker fishing during parts of certain years—generally September and October—an analysis of the catches over the period under review was rendered very difficult.

The fluctuation in the quantities of fish caught from time to time is attributed mainly to the fact that changing environmental conditions influence the available population of the two kinds of fish. The conditions which occur in the environment, and which are subject to change, include *inter alia* those which are determined by the action of physico-chemical processes. In this report an attempt is made to describe these processes and their causes, as well as their effect on, or connection with, the total catches.

Since it is probable that both the pilchard and the maasbanker are generally found in the surface layers of the sea in the commercial fishing area, attention will be confined to the characteristics of the sea in the upper 50 metres.

The temperature and salinity of the upper 50 metres of the research area which has already been investigated since 1950, are then dealt with in particular by determining the fluctuation in seasonal and annual values and by establishing the origin and occurrence of varying water types, with possible applications to the fishery.

Detailed tables of the monthly temperature and salinity values are also included in the annexure, since they may be of use to other research workers.

This report links up with and expands Investigational Report No. 27 of the Division of Fisheries.

3. RESEARCH AREA.

The data used were obtained from 20 stations in the area indicated in Fig. 1. Station **S** was omitted from the routine network as from April, 1955, because of a change in the research programme. By the addition of two stations **Y** and **Z** situated in fairly deep water, on the lines **R–T** and **P–A**, respectively, it was possible, however, to interpolate the required values of **S** with sufficient accuracy for the purpose of this report. The interpolation was carried out after the isotherms or isohalines had been drawn over the modified area.

4. METHOD.

(*a*) Collection of Data.

During routine cruises of R.S. *Africana II*, which were undertaken once a month, the Nansen-Petterssen bottle was used in making temperature observations and in taking sea-water samples at depths of 0, 10, 20, 30, 40, 50, 60, 80, 100, 125, 150, 200, 250, 300, 400 and 500 metres according to the sounding. Since April, 1955, the depths at which samples were taken, have been 0, 10, 20, 30, 40, 50, 75, 100, 150, 200, 250, 300, 400 and 500 metres.

Salinity values were ascertained by determining the chlorine content according to the Knudsen method, for which a known sea-water was used as standard and titrations were converted to salinity values with the aid of Knudsen tables which are based on the customary empirical relationship—

$$\text{Salinity}\,(S‰) = 0{\cdot}03 + 1{\cdot}805 \times Cl‰,$$ where ‰ = parts per thousand.

It is considered that the salinity values have a general accuracy of $\pm\ 0{\cdot}01‰$.

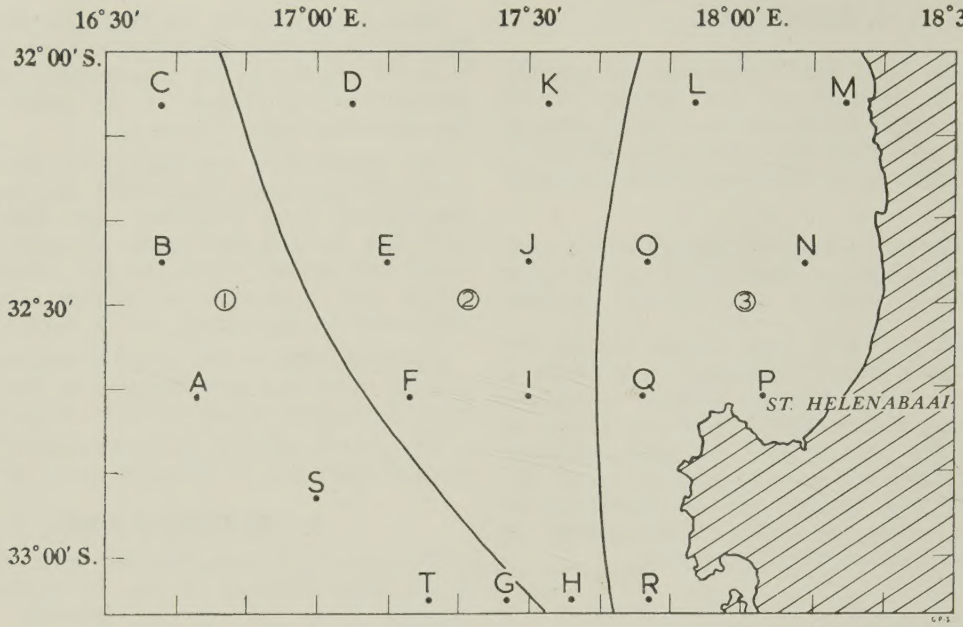

FIGURE 1.—Routine area on the west coast of South Africa with the sub-division: (1) outer area, (2) intermediate area, and (3) coastal area.

(*b*) Selection of Data.

Three separate values in respect of temperature and salinity were selected from the upper 50 metres for the purpose of discussion, namely: 0 metres; 20 metres; and the 0–50 metres mean integral average value obtained by calculation. This term is sometimes abbreviated by simply using 0–50 metres.

(*c*) Determination of Seasonal and Annual Values.

As for Investigational Report No. 27.

(*d*) Sub-division of the Area.

As for Investigational Report No. 27.

(*e*) Charting.

The seasonal and annual values of the temperature and salinity for the 0, 20 and 0–50 metres were plotted on separate charts as isograms with intervals of 0·5°C and 0·05°/$_{oo}$, respectively (Plates 1–34).

(*f*) Seven-year Averages.

The following averages were determined for the whole area, as well as for the outer, intermediate and coastal areas, for both the temperature and salinity of the 0, 20 and 0–50 metres layers:

(i) the average value of seven separate annual values, this figure being called the *seven-year average*;

(ii) the average value of seven specific seasonal values determined in the course of the seven-year period (e.g. seven spring values for the outer area) and reduced to an average value, the so-called *average spring value*, etc.;

(iii) the deviation of seasonal and annual values from their corresponding average seasonal value or from the seven-year average concerned.

(*g*) Processing of Catch Figures.

Seasonal and annual catches were calculated from the monthly catches, and the average seasonal values were ascertained by determining the arithmetical means. This was done for both the pilchard and the maasbanker catch figures.

The total pilchard and maasbanker catch for the commercial fishing year September to August for the seven-year period, as well as the seven-year average, were determined in both instances. The deviation of seasonal and annual values from the average seasonal value or from the corresponding seven-year average was also calculated.

(*Note.*—It should be mentioned here that the temperature and salinity values which are given for the winter of 1957 were obtained from only *one* monthly value, namely that for July, since no routine cruises were undertaken during the other months of this season.)

5. ANNUAL VARIATIONS.

A. The research area as a whole.

(i) Temperature.

(*a*) 0 Metres.

The average surface temperature was obtained every month from the surface values of the 20 stations. These values were added together for the twelve consecutive months commencing in September, and the average was then determined. In previous reports these twelve months were called the "commercial year" and may quite conveniently be used since the pilchard and maasbanker catches usually show a sharp decline in August, either as a result of catch restrictions or as a result of a decrease in the available population along the west coast, as was very often the case. Another reason why the commercial year was found convenient, is the fact that this period fits in best with the customary division of the different seasons, where September, October and November are regarded as spring, etc.

If the annual temperature values are represented graphically (see Figure 2), it will be observed that the annual values were fairly high in 1950/51, 1951/52 and 1952/53, steadily declined during 1953/54, rose slightly after 1955/56, and then almost reached the former higher values again in 1956/57. If the deviation of the annual values from the seven-year average is examined (see Figure 3), it is clear that, in so far as the surface temperature is concerned, 1950/51, 1951/52, 1952/53 and 1956/57 were years which were *warmer* than the average and that 1953/54, 1954/55 and 1955/56 were *colder* than the average. Particularly noticeable are the relatively marked deviations which occurred in 1954/55 and 1955/56. These years, as well as 1956/57, were very lean fishing years, especially in the St. Helena Bay area.

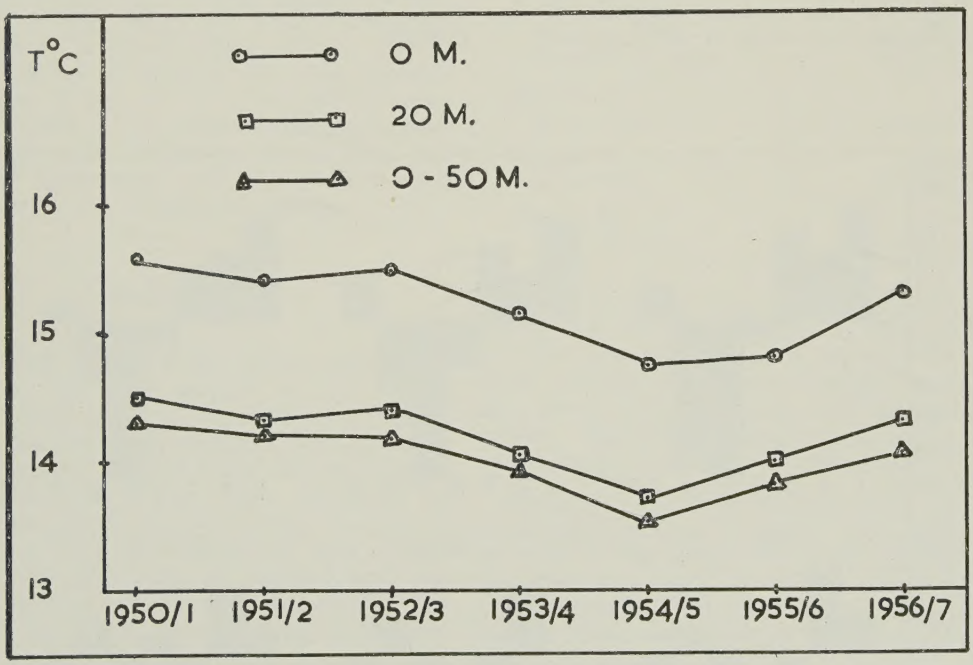

FIGURE 2.—The variation of the annual values of temperature at 0, 20 and 0–50 metres for the whole area.

A study of the horizontal distribution of temperature as plotted on the isotherm charts (Plate 1) reveals the following temperature ranges during the various years:—

1950/51.....	13·5°–17·5°C;
1951/52.....	13·0°–17·0°C;
1952/53.....	13·5°–16·5°C;
1953/54.....	13·5°–17·0°C;
1954/55.....	13·0°–16·0°C;
1955/56.....	12·5°–16·5°C; and
1956/57.....	13·5°–17·5°C.

In other words, there is only a slight difference in the surface temperature from one year to another when viewed over a period of twelve months. The location of the isotherms, which reveal a very close agreement with the general direction of the current in the upper layers of the sea in this area, correspond fairly well with one another in the various years, and it is therefore not possible to use these representations as an explanation of the variation in the annual catches.

(*b*) 20 Metres.

The average annual values for the 20 metres temperature were calculated in the same manner as for the surface temperature. The trend of the annual values over the seven-year period, as indicated in Figure 2, is essentially the same as that of the surface temperature, namely of high values at the beginning of the seven years, a decline to a minimum, and then a return to the high values again. The values of the 20 metres temperature are consistently lower, however, than the corresponding values of the surface temperature, the difference varying from 0·81°–1·12°C.

In Figure 3 it can be seen from the deviations of the annual values from their seven-year average that the years 1950/51, 1951/52, 1952/53 and 1956/57 are indicated as warmer years and the other three as colder years. The exceptionally large negative deviation which occurred in 1954/55 is striking and confirms the similar phenomenon encountered at the surface. As has been mentioned earlier, the catches in the St. Helena Bay area were poor during the ensuing period.

As regards the horizontal distribution of the annual values of the 20 metres temperature, the following ranges are obtained for the various years from the isotherm charts (Plate 2):—

1950/51..... 11·0°–17·5°C;
1951/52..... 11·0°–17·0°C;
1952/53..... 11·5°–16·0°C;
1953/54..... 11·5°–16·5°C;
1954/55..... 10·5°–16·0°C;
1955/56..... 10·5°–16.5°C; and
1956/57..... 11·0°–17·0°C.

Once again no marked deviation was found in either the distribution or the values of the isotherms.

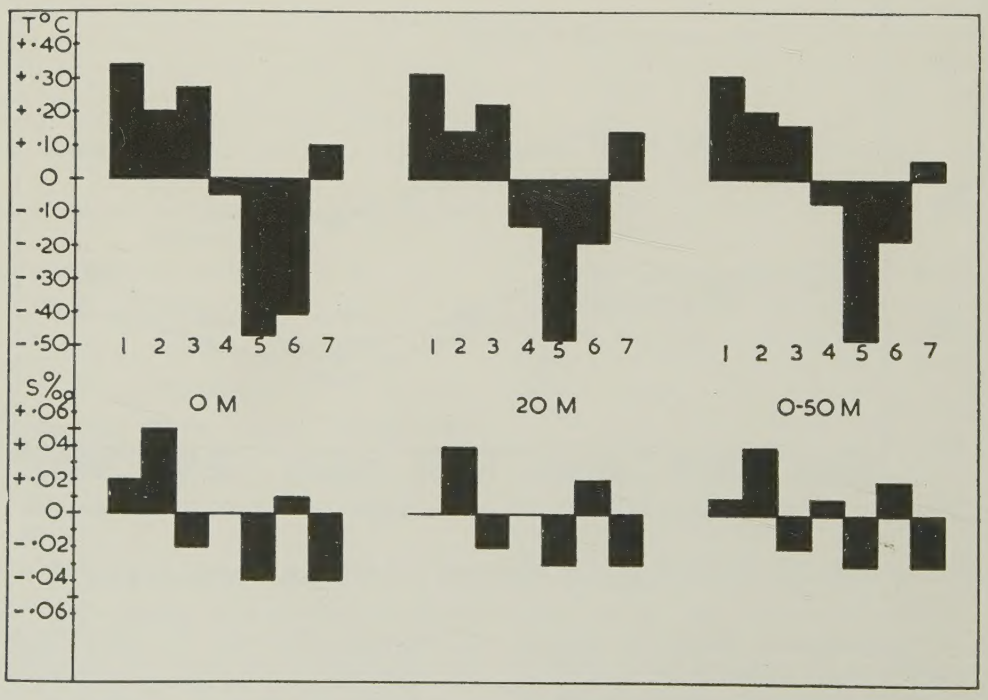

FIGURE 3.—Deviation of annual values of temperature and salinity for the whole area from their respective averages. 1.....1950/51, 2.....1951/52, etc.

(c) 0–50 Metres.

The variation in the annual values of the temperature over the upper 50 metres is approximately the same as that of the corresponding values of the 20 metres, with the exception that, where the temperature shows a shallow or secondary minimum value at 20 metres in 1951/52, this does not occur in the case of the value of the 0–50 metres. This difference is indicated clearly in Figures 2 and 3.

The ranges of the isotherms in the various years are shown in the following table (Plate 3):—

1950/51.....	11·5°–17·0°C;
1951/52.....	11·0°–16·5°C;
1952/53.....	12·0°–16·0°C;
1953/54.....	11·5°–16·5°C;
1954/55.....	11·0°–15·0°C;
1955/56.....	11·0°–16·0°C; and
1956/57.....	11·5°–16·5°C.

From the foregoing it would appear that the temperature of the upper 50 metres completed a cycle during the period under review. Unfortunately it cannot be stated at this stage whether the following period of 7–8 years will produce another such cycle. A far longer period of research will be necessary to determine the duration and regularity of such cycles and to investigate their connection with the commercial catches.

(ii) Salinity.

(a) 0 Metres.

If the annual values of the surface salinity are calculated in the same manner as the annual values of temperature, it is observed that the former remain practically constant from one year to another (Table 13), with values varying between 35·02°/$_{oo}$ and 35·11°/$_{oo}$. The deviation of annual values from the seven-year average is represented in Figure 3. It will be noticed that no recognisable cycle can be detected here but that the fluctuation is somewhat haphazard. The only peculiarity which may perhaps be pointed out, is the apparently high salinities recorded in 1951/52.

From the representation of the surface isohalines (equal salinity values) on the horizontal level for the research area — see Plate 4 — it is seen that the 35·20°/$_{oo}$–34·90°/$_{oo}$ values have the same location almost every year despite the variations which occur along the western margin of the routine area as well as near the coast. The basic isohaline pattern remains virtually unchanged.

The variation in salinity which occurs close inshore is attributed mainly to the fact that the salinity values recorded near the coast during some winter months were lower than would normally have been expected, as a result of local dilution caused by the discharge of the Berg River. This river drains a portion of the south-western Cape situated in the winter-rainfall area and is therefore frequently in spate during the winter. Most of these low salinity values are therefore recorded at the observation station **P**, situated nearest to the mouth of this river, as is indicated below:—

Station P—Surface Salinity Values.

September, 1952.....	34·20°/$_{oo}$.
June, 1953.....	34·11°/$_{oo}$.
May, 1954.....	32·38°/$_{oo}$.
July, 1954.....	34·25°/$_{oo}$.
August, 1954.....	33·77°/$_{oo}$.
July, 1955.....	34·20°/$_{oo}$.
August, 1955.....	33·04°/$_{oo}$.
May, 1956.....	34·36°/$_{oo}$.
August, 1956.....	33·87°/$_{oo}$.
September, 1956.....	34·20°/$_{oo}$.
Station M—	
July, 1954.....	34·43°/$_{oo}$.
Station N—	
July, 1955.....	34·45°/$_{oo}$.
Station Q—	
July, 1955.....	34·47°/$_{oo}$.

Apart from the foregoing examples, no other similar low values due solely to dilution have as yet been observed at any of the other 16 stations in the research area in winter during or immediately after heavy rains in the course of the period under review. Rainfall as a direct cause of the dilution can therefore be completely eliminated.

Along the outer edge of the area, i.e. the western or seaward side, the 35·40°/$_{oo}$ line occurred only in 1950/1. In 1952/3 the value of the highest isohaline was only 35·25°/$_{oo}$ here. It would appear, however, that the surface salinity values have for the rest changed very little from one year to another.

(b) 20 Metres.

The annual values of salinity at 20 metres vary from 35·03°/$_{oo}$ to 35·10°/$_{oo}$ during the seven-year period, these figures representing a smaller fluctuation than that encountered in the case of the surface values. At this depth, too, no clear cycle of salinity over the seven years can be observed (Figure 3).

A study of the isohaline charts of the 20 metres depth reveals only minor fluctuations in values obtained close inshore. This phenomenon is discussed under the variation in the characteristics of the waters of the coastal area. It should be mentioned here, however, that in those cases where the low salinities were observed at the surface during the winter months, with only a few exceptions no similar low values were observed at the 20 metres level. In the following table the 20 metres salinities which correspond with earlier low surface salinities are given:—

Station P.	
September, 1952	34·78°/$_{oo}$.
June, 1953	34·70°/$_{oo}$.
May, 1954	34·83°/$_{oo}$.
July, 1954	34·92°/$_{oo}$.
August, 1954	34·52°/$_{oo}$.
July, 1955	34·54°/$_{oo}$.
August, 1955	34·56°/$_{oo}$.
May, 1956	35·05°/$_{oo}$.
August, 1956	34·79°/$_{oo}$.
September, 1956	34·96°/$_{oo}$.
Station M.	
July, 1954	34·56°/$_{oo}$.
Station N.	
July, 1955	34·79°/$_{oo}$.
Station Q.	
July, 1955	34·65°/$_{oo}$.

The decrease in salinity during the winter months can therefore be attributed all the more to local dilution which is observable only in the surface layer, and then only when vertical mixing is limited. Under conditions where mixing occurs on a large scale, the abnormally low salinities in the surface layer will be of brief duration.

It sometimes happens that the decrease in the salinity from the surface to the deeper layers, which is characteristic of the sea-water along the west and south coasts of South Africa, is interrupted by an intermediate increase which reaches a maximum, after which the salinity decreases again. This phenomenon, which is attributed to the presence of a sub-surface current, was very rarely encountered in the research area during winter. Since upwelling is considered to be minimal in the winter as a result of prevailing winds, the absence of the sub-surface current in the winter is associated with a low level of upwelling. The occurrence of this current in the summer months is linked with an increase in upwelling along the west coast, and in the writer's opinion this is caused by the inversion of the upwelled coastal waters over surface water which is encountered further seawards and which consequently has a higher salinity. There is, however, no deep water with a salinity of less than 34·25°/$_{oo}$ which can well up along the west coast. Upwelling can therefore be eliminated as a cause of the low salinity values which occur along the coast during the winter months.

The fact that the run-off of the Berg River can vary in volume from one year to another, involuntarily raises the question whether this water could not have an important bearing on the development and occurrence of specific types of plankton in the St. Helena Bay area, which would then have the indirect effect of either attracting or repelling migratory fish. In this connection reference may be made to work which has been conducted to an increasing extent during recent years in order to determine the effect of the so-called metabolites and trace elements on the selection and growth of certain species of plankton and, furthermore, to ascertain the behaviour and habits of fish.

(c) 0–50 Metres.

It was found that the variation in the annual values of the 0–50 metres (Plate 6) corresponds very closely with the variations in the 20 metres salinity (Plate 5). It is consequently not considered necessary to investigate this aspect any further.

B. Outer Area.

(i) Temperature.

(a) 0 Metres.

The variation in the annual values of the surface temperature in this area is represented in Figure 4 from which it can be seen that a cycle was completed and that its minimum was observed in 1954/55. This is illustrated further in Figure 6 in which the deviation from the seven-year average for the various years is represented. Both representations, particularly the latter, show that the period from September, 1954, to August, 1955, was considerably colder than the average and that the extent of the deviation was greater than in any other year.

(b) 20 Metres.

The variations in the 20 metres temperature closely follow the pattern shown by the surface temperature.

(c) 0–50 Metres.

Practically identical with (*a*) and (*b*).

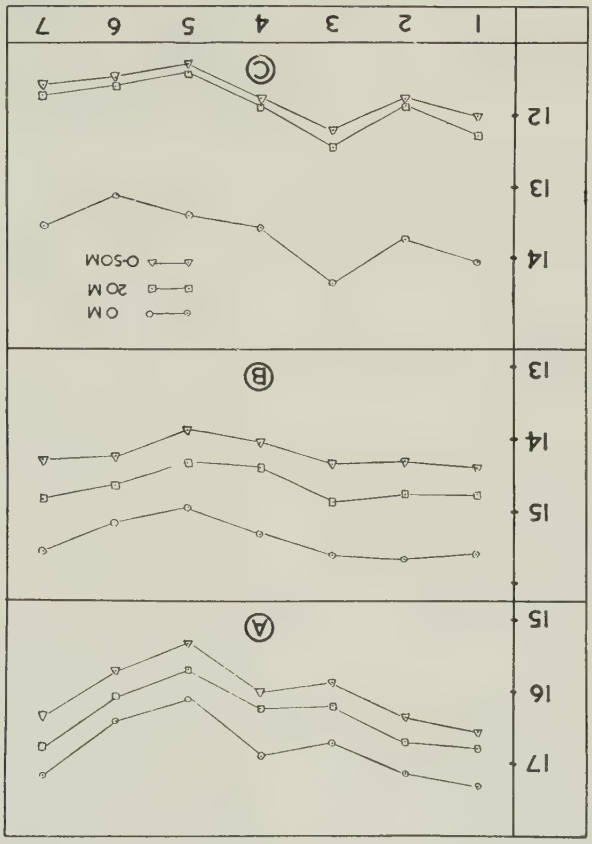

FIGURE 4.—Variation of the annual values of temperature for 0, 20 and 0–50 metres for (A) outer area, (B) intermediate area, and (C) coastal area.

(ii) Salinity.

(*a*) **0 Metres.**

In the years 1950/51 and 1951/52 the surface salinity was higher than in any other year, and this phenomenon is in accordance with that of the corresponding temperatures. The years 1953/54 and 1955/56 show average conditions, while the salinity values of the remaining years, namely 1952/53, 1954/55 and 1956/57 are below average. The salinities revealed a slow downward trend over the seven-year period and possibly reached a turning point towards the end of the period under review.

(*b*) **20 Metres.**

As in (*a*).

(*c*) **0–50 Metres.**

As in (*a*) and (*b*).

C. Intermediate Area.

(i) Temperature.

(*a*) **0 Metres.**

In the course of the seven-year period the surface temperature completed a cycle similar to that in the outer area. The deviation of the annual values from the seven-year average is on the whole very slight.

(*b*) **20 Metres.**

The variations in the 20 metres values are similar to those in (*a*).

(*c*) **0–50 Metres.**

As for (*b*).

(ii) Salinity.

(*a*) **0 Metres.**

The variations in salinity are apparently influenced by variations which occur either in the outer area or in the coastal area, and seem to have completed a cycle within six years.

(*b*) 20 Metres.

The same as for (*a*).

(*c*) 0–50 Metres.

The same as for (*a*) and (*b*).

Coastal Area.

(i) Temperature.

(*a*) 0 Metres.

The cycle of the surface temperature in the coastal area shows a difference from that observed in outer and middle area. Although the years

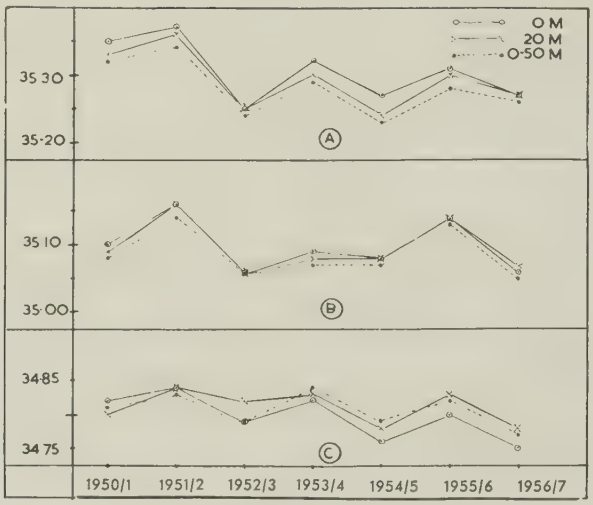

FIGURE 5.—Variations of the annual values of salinity at 0, 20 and 0–50 metres for the (A) outer area, (B) intermediate area, and (C) coastal area.

1950/51, 1951/52 and 1952/53 were warmer than the average, the greatest deviation was observed in 1952/53. The temperature subsequently decreased till its lowest value was reached in 1955/56. Although the temperature afterwards rose again, it was still below the average in 1956/57.

(*b*) 20 Metres.

At this depth the variations which were observed, are similar to those in the surface layer, except that the minimum temperature was recorded in 1954/55 and that a slow upward trend was detected during the following two years. The temperature was in any case still comparatively low during these years. It is interesting to note that such a marked difference exists between the surface and the 20 metres temperatures. This phenomenon is encountered only in the coastal area and is in accordance with the previous finding that the thermocline occurs in the uppermost layer of the sea along the west coast of South Africa.

(*c*) 0–50 Metres.

The variation in the 0–50 metres temperature is practically the same as that for the 20 metres temperature.

(ii) Salinity.

(*a*) 0 Metres.

Although the variations in the surface salinity are relatively small, it is notable that the prevailing trend was downward but that the turning point had evidently not yet been reached.

(*b*) 20 Metres.

The same trends are observed in the variations of the 20 metres salinity.

(*c*) 0–50 Metres.

The same as for (*b*).

It is noticed that the salinities of the 20 metres and 0–50 metres layer are greater than the surface values. This phenomenon also occurs only in the coastal area and is frequently due to the fact that the surface salinites observed in the winter were so low that they influenced the annual averages. This was particularly the case in 1953/54 and 1954/55. During the years 1952/53 and 1955/56 both the winter dilution and the occurrence of sub-surface currents, as characterised by a secondary salinity maximum, contributed towards this condition. In 1955/56 and 1956/57 the presence

of sub-surface currents played a dominant role in bringing about this condition. These currents were regularly observed from December, 1955, to April, 1956, and again from November, 1956, until April, 1957, in contrast with previous years when they were observed only at irregular intervals. The significance and origin of these currents are not yet fully understood, although, as has already been said, a strong possibility exists that they are associated with upwelling and everything accompanying it.

6. AVERAGE SEASONAL VARIATIONS.

A. Temperature Cycle.

(i) 0 Metres.

The average value for spring was calculated for every station by using the seven spring values. The average spring values for the 20 stations were plotted and the isograms drawn. The same procedure was also followed for the other three seasons, and in this manner the four charts on Plate 7 were obtained.

From this it can be seen that the surface temperature ranges from 13° to 16°C during spring and from 13·5° to 18·5°C during summer, indicating a general warming over the research area. In autumn the waters close inshore (including the greater part of the coastal area) are slightly warmer at the surface than in summer, but further away from the coast the temperature decreases from summer to autumn. The temperature range in autumn is from 14° to 17·5°C. Winter conditions are characterised by a decline in temperature over the whole research area and the values vary from 13° to 15°C.

The cycle is practically the same as that previously found.

(ii) 20 Metres.

Owing to the close agreement with the 0–50 metres values, the changes observed in the 20 metres layer from one season to another will not be discussed separately.

(iii) 0–50 Metres.

As the warming effect, which reaches a peak in the summer months and its minimum in winter, influences the heat content of the more turbid surface waters of the coastal area in particular, it is expected that the temperature cycle of the 0–50 metres (as well as that of the 20 metres layer) will differ from the cycle at the surface.

It was found that the average spring values (Plate 8) vary from 11°C near the coast to 15·5°C in the outer area. From spring to summer the 11°C line lies further west, and the temperatures here range from 11°C to 17°C. There is a decrease from 11°C to 10·5°C from summer to autumn in the vicinity of Stompneuspunt, but for the rest the temperatures remain constant in the coastal area. Over the outer area the temperature remains practically unchanged during the transition from summer to autumn. The temperature range in autumn is from 10·5°C to 17°C. The northern part of the coastal area experiences a rise in temperature during the transition from autumn to winter. For the rest the temperature declines to a level between 10·5° and 15·5°C.

The temperature of stations lying in the intermediate area for the most part shows no measurable deviation from one season to another.

The difference between the average seasonal cycles of the surface temperature and the 0–50 metres temperature is therefore mainly that, at the northern stations, maxima occur at the surface during summer and over the upper 50 metres in winter, this being another confirmation of previous findings made over a shorter period. *It can therefore be assumed that a similar finding will be made over a longer period of observation.*

B. Salinity Cycle.

(i) 0 Metres.

The seasonal values of salinity for the period under review, indicate a variation from 34·70°/$_{oo}$ near the coast to 35·35°/$_{oo}$ in the outer area during spring, from 34·75°/$_{oo}$ to 35·30°/$_{oo}$ in summer, from 34·70°/$_{oo}$ to 35·30°/$_{oo}$ in autumn, and from 34·40°/$_{oo}$ to 35·30°/$_{oo}$ in winter (Plate 9). The decrease in salinity from spring to summer indicates that upwelling increased in the latter season since spring. There is very little difference between the summer and autumn salinities, except that they decreased close inshore from summer to autumn. It would therefore appear that smaller patches of intense upwelling occur during autumn, and that these remain confined to the coastal area. From autumn to winter the isohalines move closer to the coast, i.e. the salinities increase or tend to increase. Along the outer area the values become more homogeneous as a result of the stormy winter conditions which are conducive to mixing. The sharp decrease in the St. Helena Bay area is due, as previously mentioned in this report, to the greater volume of water discharged into the sea by the Berg River in winter.

(ii) 0–50 Metres.

The ranges of the average seasonal salinity values for the 0–50 metres are from 34·80°/$_{oo}$ to 35·35°/$_{oo}$ in spring, from 34·75°/$_{oo}$ to 35·30°/$_{oo}$

in summer, from 34·75°/$_{oo}$ to 35·25°/$_{oo}$ in autumn, and from 34·80°/$_{oo}$ to 35·30°/$_{oo}$ in winter (Plate 10). The behaviour of these values is similar to that of the surface, except that no effect of dilution is observable in winter and that the values are generally higher than those at the surface. The same can also be said for the seasonal values of the 20 metres salinities.

7. SEASONAL VALUES OF TEMPERATURE AND SALINITY.

A. Routine Area (Plate 35).

(i) 0 Metres.

The surface temperature for the routine area as a whole varies somewhat irregularly, but despite this fact maxima are usually recorded in the period from summer to autumn and minima in the period from winter to spring. In contrast with this, the salinity reached maximum values in winter–spring and minimum values in summer–autumn. The opposite nature of the two variables appears to be strange, since they generally have a linear connection with each other in the research area, particularly over short periods. This can be seen when the two variables occurring at the same position are graphically represented against each other as points for the same and increasing depth (with the salinity along one axis and the temperature along the other).

(ii) 20 Metres.

The variations recorded at the 20 metres depth show no annual cycle. The salinity values still change fairly regularly, however, and minima are recorded from summer to autumn (on occasion) and maxima sometimes during the period from winter to spring.

(iii) 0–50 Metres.

The very close relationship which exists between the variations in the 20 and the 0–50 metres values of both the temperature and the salinity makes it unnecessary to discuss the 0–50 metres as such.

From the foregoing paragraphs it will be seen that greater reliance can be placed on the variations in salinity since they undergo relatively little change from one season to the next and since they are also not subject to the external influence of sunlight to anywhere near the same

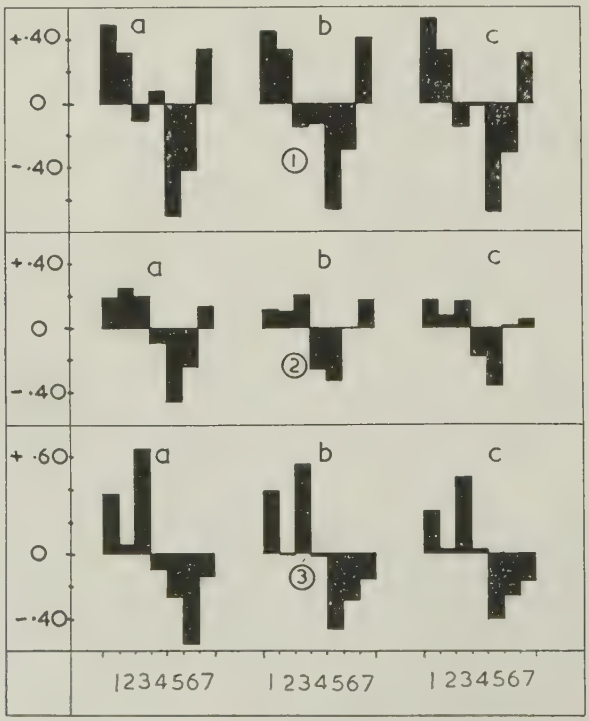

FIGURE 6.—Deviation of annual values of temperature at (*a*) 0 metres, (*b*) 20 metres, (*c*) 0–50 metres from the average for (1) outer area, (2) intermediate area, and (3) coastal area. 1....1950/51, 2....1951/52, etc.

extent. It has, for example, happened in the past that the monthly variations in salinity have been insignificant for quite some time. On the the other hand, sudden changes in the salinity values have also occurred when these could not be reconciled with local weather conditions, but which could have been symptoms of phenomena beyond the confines of the research area. All this indicates salinity as a more specific reflection of the characteristics of the waters found off the coasts of South Africa. Although temperature alone cannot be used with equal readiness, it may nevertheless be of great value when used together with salinity in order to analyse water types, and this has in fact been done on a considerable scale in Section 9.

Outer Area (Plate 36).

It is found that the temperatures of the 0, 20 and 0–50 metres layer show a closer agreement with one another in the outer area than in the routine area as a whole. Well-defined annual cycles with peaks in the period from summer to autumn and troughs in the period from winter to spring are recorded in all three cases. Although a mutual relationship does exist between the salinity values of the 0, 20 and 0–50 metres layer, no annual cycle can be detected. If it is borne in mind that the course of the temperature cycle shows the same trend as the number of sun-hours available per season, then it would appear that this cycle is to a certain extent affected by the latter. The mere fact that the trend of the salinity cycle is different may therefore point to a significant deviation.

In order to reduce the difference between the cycles of temperature and salinity to a common feature, the seasonal variations in the two factors were represented on the same diagram, from which it appears that the following effects may be obtained for the surface (0 metres) (See Plates 35–38):—

(*a*) Salinities may increase with an increase in temperature, which would as a rule be expected.

(*b*) Salinities may decrease with an increase in temperature.

(*c*) Salinities may decrease with a decrease in temperature, which would also as a rule be expected.

(*d*) Salinities may increase with a decrease in temperature.

These four trends were conveniently analysed by drawing up a table in which the variations in the two scalars are represented, an increase from one season to the next being indicated by a plus sign and a decrease from one season to the next by a minus sign, as shown below.

Seasonal Transition from.	1950/51.		1951/52.		1952/53.		1953/54.		1954/55.		1955/56.		1956/57.	
	T	S	T	S	T	S	T	S	T	S	T	S	T	S
Spring–Summer	+	−	+	−	+	·	+	+	+	·	+	−	+	−
Summer–Autumn	+	+	−	−	−	−	−	+	−	·		−	−	−
Autumn–Winter	−	+	−	+	−	+	−	−	−	+	−	+	−	=
Winter–Spring	−	−	+	−	+	=	+	+	+	+	+	+		

From the table it can be seen that:—

(i) where the temperature from spring to summer increased in all seven years, the salinities declined in six of the seven years;

(ii) with the transition from summer to autumn the temperature generally decreased, this fall being accompanied by a corresponding decrease in salinity, except for one case where the salinity increased. In another year both the temperature and the salinity increased;

(iii) with the transition from autumn to winter the decrease in temperature which occurred, was acompanied by an increase in salinity, except in 1953/54 when the salinity decreased in the course of this transition, and also in 1956/57 when the autumn and winter values were the same; and

(iv) with the transition from winter to spring the temperature rose and the salinity generally showed a corresponding increase.

It is clear that in most years, due to circumstances which still have to be investigated and determined, two sharp changes set in every year at the surface of the outer area—one during the transition from spring to summer and the other from autumn to winter.

When the seasonal changes which manifest themselves in the case of the 0–50 metres layer of the outer area are examined in the same manner, the findings are confirmed, as will appear from the following table:

0-50 METRES: OUTER AREA: CHANGE IN TEMPERATURE AND SALINITY FROM ONE SEASON TO THE NEXT.

Seasonal Transition from.	1950/51.		1951/52.		1952/53.		1953/54.		1954/55.		1955/56.		1956/57.	
	T	S	T	S	T	S	T	S	T	S	T	S	T	S
Spring–Summer	−	−	+	−	+	−	+	−	+	−	+	−	+	−
Summer–Autumn	+	+	−	−	−	−	+	+	−	−	−	−	−	−
Autumn–Winter	−	+	−	+	−	+	−	=	−	+	−	+	−	+
Winter–Spring	−	=	+	+	+	−	+	+	+	+	+	+		

The same phenomena are also found upon examination of the temperature and salinity at 20 metres.

To summarise:—

With the transition from spring to summer, the temperature increases and the salinity decreases in the upper 50 metres of the outer area. From summer to autumn the rise or fall in temperature is accompanied by a corresponding change in the salinity; from autumn to winter the fall in temperature is accompanied by an increase in the salinity, and with the transition from winter to spring the salinity increases (or decreases) in accordance with the temperature.

The fact that the temperature in the upper 50 metres of the outer area has a more rhythmical annual cycle does not therefore connote that this is a more conservative feature of the waters in the research area, because, in the light of the analysis just made, the variation in the salinity, which at first glance seems irregular, emerges as a rhythmical pattern together with that in respect of temperature.

C. Intermediate Area (Plate 37).

(*a*) **0 Metres.**

At the surface in this area maximum temperatures occur both in summer and in autumn, while minima are recorded mainly in winter. There was one year, however, when the minimum was recorded in winter-spring.

In contrast with this, the salinity maxima are recorded in winter–spring and minima in summer. When the changes in temperature and salinity which occur from one season to the next are compared with one another, as was done in the case of the outer area, the following results are obtained:—

0 METRES: INTERMEDIATE AREA.

Seasonal Transition from.	1950/51.		1951/52.		1952/53.		1953/54.		1954/55.		1955/56.		1956/57.	
	T	S	T	S	T	S	T	S	T	S	T	S	T	S
Spring–Summer	+	−	+	−	−	−	+	−	+	−	+	−	+	−
Summer–Autumn	−	+	−	−	+	+	+	+	+	+	−	+	−	+
Autumn–Winter	−	+	−	+	−	+	−	+	−	+	−	+	−	+
Winter–Spring	−	+	+	−	+	−	+	+	+	+	+	−		

From the foregoing it is seen that—

(i) with the transition from spring to summer, increases in temperature are as a rule accompanied by a decrease in salinity, as was also found to be the case at 0, 20 and 0–50 metres of the outer area;

(ii) with the transition from summer to autumn an agreement is found to exist between the changes in temperature and the salinity in four of the years or in other words that they both rise or fall, while in three instances their changes are opposite;

(iii) with the transition from autumn to winter opposite changes in temperature and salinity are observed without exception;

(iv) from winter to spring the changes either correspond or differ, so that no clear conclusion may be drawn from them; and

(v) it is particularly striking that, regarded in general, the changes in temperature and salinity have an opposite trend, since this was the case in 20 out of the 27 seasonal transitions under review.

(*b*) **20 Metres.**

The trend of the seasonal temperature at the 20 metres depth in the intermediate area is most variable, and the maxima occur at varying intervals. Minima occur in practically every possible season during the different years. Despite this fact the salinity shows a fairly regular cycle with peaks in the period from winter to spring and troughs which occur either in summer or in autumn.

An analysis of the agreement or difference in temperature and salinity changes during the seasonal transitions, gives the results shown in the following table:—

20 METRES: INTERMEDIATE AREA.

Seasonal Transition from.	1950/51.		1951/52.		1952/53.		1953/54.		1954/55.		1955/56.		1956/57.	
	T	S	T	S	T	S	T	S	T	S	T	S	T	S
Spring–Summer	−	−	+	−	−	−	−	−	−	−	+	−	+	−
Summer–Autumn	−	+	−	−	+	+	+	+	+	+	−	=	+	+
Autumn–Winter	−	+	+	+	−	+	−	+	−	+	−	+	−	+
Winter–Spring	−	+	+	=	−	−	+	+	+	+	+	−		

From the above table it is seen that—

(i) from summer to autumn, agreements are generally encountered between the changes in temperature and salinity;

(ii) with the transition from autumn to winter, differences generally occur; and

(iii) with the transition from winter to spring and from spring to summer, no fixed pattern can be obtained since agreements and differences occur in almost equal proportions.

(*c*) **0–50 Metres.**

At the 0-50 metres depth, as in the case of the 20 metres, no clear temperature cycle is observed, while that in respect of salinity shows a close agreement with the salinity cycle of the 20 metres in the same area.

The following table shows the temperature and salinity changes in the 0–50 metres layer in the intermediate area:—

0–50 METRES INTERMEDIATE AREA.

Seasonal Transition from.	1950/51.		1951/52.		1952/53.		1953/54.		1954/55.		1955/56.		1956/57.	
	T	S	T	S	T	S	T	S	T	S	T	S	T	S
Spring–Summer	−	−	+	−	−	−	−		−	−	+	−	−	−
Summer–Autumn	+	+	−	−	+	+	+	+	+	+	−	−	+	+
Autumn–Winter	+	+	+	+	−	+	+	+	−	+	+	+	−	+
Winter–Spring	−	+	+	+		−	−	=	+	+	+	−		

From the foregoing it can be seen that these temperature and salinity changes—

(i) for the most part correspond from spring to summer;

(ii) mainly correspond from summer to autumn;

(iii) sometimes correspond and sometimes differ from autumn to winter; and

(iv) correspond and differ in equal proportions from winter to spring.

It would appear that the variations in the surface values of temperature and salinity in the intermediate area agree with those in the upper 50 metres of the outer area and that the variations at 20 metres and in the 0–50 metres layer show a greater tendency to correspond with what may be expected in the coastal area.

D. Coastal Area (Plate 38).

(*a*) 0 Metres.

In the coastal area, maximum temperatures at the surface are for the most part encountered in summer, although peaks were also recorded in autumn (2) and in spring (1). Minima occur in winter or early spring, but in one instance a minimum was recorded even in summer. Salinity at the surface shows maxima in spring and sometimes in winter; minima occur mainly in summer to autumn, although low values were sometimes also recorded in winter.

0 METRES: COASTAL AREA.

Seasonal Transition from.	1950/51.		1951/52.		1952/53.		1953/54.		1954/55.		1955/56.		1956/57.	
	T	S	T	S	T	S	T	S	T	S	T	S	T	S
Spring–Summer	−	−	+	−	−	−	+	−	+	−	+	−	+	−
Summer–Autumn	+	+	−	=	+	+	+	+	−	+	−	+	−	+
Autumn–Winter	−	+	−	+	−	+	−	+	·	−	·	+	·	−
Winter–Spring	−	+	+	+	−	+	−	−	+	+	+	−		

From the above table in which the change in temperature and salinity is given with each seasonal transition, it is seen that—

(i) from summer to autumn the changes in salinity in most cases show a contrary trend to those in respect of temperature;

(ii) the same phenomenon is found from autumn to winter; and

(iii) with the transition from winter to spring and from spring to summer the changes in salinity are either similar or opposite to those in respect of temperature.

(*b*) 20 Metres.

The temperature at the 20 metres depth generally attains its highest values in winter and its lowest in summer, although deviations from this rule were encountered in one or two instances. Salinity attains maximum values in the period from winter to spring and minimum values in summer and sometimes in autumn.

20 METRES: COASTAL AREA.

Seasonal Transition from.	1950/51.		1951/52.		1952/53.		1953/54.		1954/55.		1955/56.		1956/57.	
	T	S	T	S	T	S	T	S	T	S	T	S	T	S
Spring–Summer	−	−	−	−	−	−	−	−	−	−	−	−	−	−
Summer–Autumn	+	−	−	−	+	+	+	+	+	+	+	+	+	+
Autumn–Winter	+	+	+	+	−	+	+	+	+	+	+	+	+	−
Winter–Spring	−	+	+	+	−	−	−	−	−	+	−	−		

The foregoing table shows that the changes in temperature and salinity—

(i) correspond during the period from spring to summer;

(ii) generally correspond from summer to autumn;

(iii) generally correspond from autumn to winter; and

(iv) generally correspond from winter to spring.

In fact, temperature and salinity changes agree in 22 cases out of the 27 seasonal transitions during the period under review.

(*c*) **0-50 Metres.**

There is a fairly close relationship between the characteristics of the 20 and the 0-50 metres layer of the coastal area, as is apparent from the cycles of both the temperature and the salinity.

0–50 METRES: COASTAL AREA.

Seasonal Transition from.	1950/51.		1951/52.		1952/53.		1953/54.		1954/55.		1955/56.		1956/57.	
	T	S	T	S	T	S	T	S	T	S	T	S	T	S
Spring–Summer	−	−	+	−	−	−	+	−	−	−	−	−	−	−
Summer–Autumn	+	=	−	−	+	+	+	+	−	+	+	+	+	+
Autumn–Winter	+	+	+	+	−	+	+	+	+	+	+	+	+	−
Winter–Spring	−	+	+	+	−	−	−	−	−	+	−	−		

From the above table it can be seen that the conclusions here are the same as those for the 20 metres depth in the coastal area. Out of the 27 seasonal transitions under review, an agreement was found to exist between changes in temperature and salinity in no fewer than 20 instances.

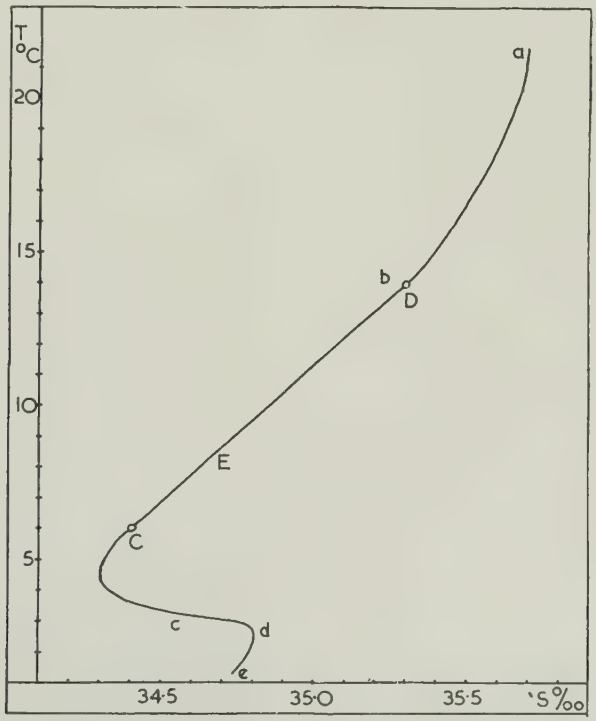

FIGURE 7.—Typical example of the T–S characteristics of waters occurring off the west coast of South Africa.

8. SEASONAL CHANGES IN T–S RELATIONSHIPS.

A. General.

As has been seen from the foregoing increasing temperatures recorded from one season to the next are sometimes accompanied by an increase and sometimes by a decrease in the salinity. Opposite trends in these changes were also observed in the different areas.

In order to examine these phenomena further, use is made of the T–S method which has already been very successfully employed by other research workers to distinguish between waters of different sources and to elucidate the processes of mixing (Helland-Hansen, Jacobsen, Stockman, Sverdrup and Fleming, Miller, MacClellan, etc.)

The procedure followed in the T–S method is to represent the temperature on a plane against the salinity, the former along the vertical and the latter along the horizontal axis. This is done for each observation point at an oceanographic station, from the surface downward with increasing depth. All the points obtained are thereupon joined by a line or curve which is then called the T–S curve.

The shape and position of the curve on the T–S plane are generally characteristic for the waters which occur in the various oceans or currents in the oceans, and use of these curves enables the point or points of origin of many secondary waters to be identified. In theory a water mass, for example, may originate in certain parts, and this is then represented as a point on the T–S plane. After systematic mixing with a second water type, which is also conveniently represented as a T–S point, a series of mixtures is produced, the properties of which will be such that they can be represented as a straight line on the T–S plane bounded by the two relative T–S points (Proudman *et alii*).

If, in Fig. 7, one point of origin is D and the other C, then all possible mixtures of the two types lie on the straight line CD, and the composition of an intermediate mixture E will be indicated by the following equations:—

$$\% \text{ C water} = \frac{ED}{CD} \times 100$$

$$\% \text{ D water} = \frac{EC}{CD} \times 100$$

The indication of a mixture as a point on the straight line connecting the points of origin is valid only if no external factors such as sunlight, evaporation, rainfall, or the melting or formation of ice have in the meantime affected the system and consequently changed the characteristic properties of temperature and salinity beyond recognition.

In actual fact, however, only very rarely is a water mass found which can be represented by a single T–S point, this rather being represented either by a small surface or by a line (curve). Most oceanic waters which are investigated from the surface of the sea to the bottom, consist of three, four or even more types of water, and are characterised by a composite curve. In the upper 100 metres there are usually numerous deviations which could have been caused by, *inter alia*, local weather conditions and which hamper the identification of these waters.

In the oceanic waters encountered round the southern tip of Africa, and within 200 miles of the coast, the following types of water are found:—

(i) Surface water of subtropical origin in the upper 100–150 metres, these having certain general but varying properties which depend upon the vicinity where they occur (portion *ab* of Figure 7).

(ii) Intermediate water with characteristic properties—the *Antarctic intermediate water* formed as a result of the confluence of waters at the *subtropical convergence* and identifiable by a nucleus of minimum salinity of *circa* 34·3‰ (portion *bc* of Figure 7).

(iii) Deep water, the *warm deep water* which occurs from a depth of about 1,800–2,000 metres downwards and which is represented by waters in the proximity of *d*.

(iv) Bottom water which originated in the South polar region as a result of the formation of ice, during which salts in solution were concentrated in the sea-water which then became heavier and sank to the bottom, from where it gradually spread northwards, filling all the depressions along the sea-bed.

The waters encountered above the continental shelf in the St. Helena Bay area do not contain any components of the water types mentioned under (iii) and (iv) because the last mentioned lie too deep and are cut off from the coastal region by the edge of the continental shelf.

From a preliminary examination of temperature and salinity relationships obtained from data for the calendar years 1952–1956, it appears that—

(*a*) the vast majority of the T–S points obtained from data collected during routine cruises lie within a quadrilateral ABCD for at least nine

months of the year, as is illustrated by the example in Figure 8;

(*b*) during most winter months all T–S points lie within a triangle as represented by A′C′D in Figure 8;

(*c*) the portion CD or C′D of the triangle or quadrilateral is characteristic for the period 1952–56 not only in regard to the gradient but also in respect of the relative position on the T–S plane; and

(*d*) the following types of water occur:—

Off-shore surface waters, as represented by T–S points in the immediate vicinity of BC;

Inshore surface waters, as represented by points in the portion lying between D and A or A′; and

Intermediate waters from between 100–150 metres to the sea-bed at the deeper stations (*circa* 500 metres) which lie either on CD or C′D. These waters may, however, also occur at a relatively shallow level near the coast—in fact even at 30 metres.

The intermediate waters found at the deeper stations on the continental shelf in the St. Helena Bay area, consist of the upper portion of the Antarctic intermediate water which contains an increasing proportion of surface water of subtropical origin as the sea surface is approached. Along the coast the presence of this water is explained by the fact that the planes of density in the sea incline upwards from west to east due to the northerly movement of the ocean currents along the west coast. This means that the same water encountered at a depth of 200 metres at a station in the outer area may also occur at a depth of 30–40 metres at a coastal station, since it has a similar density. It is possible that with the increase in upwelling during the period from the winter to the summer months, this water may be be brought to the surface where it is heated by the sun without the salinity being changed to any marked extent. The water therefore has a low salinity and a fairly high temperature, is then found on or near the portion DA or DA′, and represents the surface water near the coast, or *coastal water* for short. This water, in other words, is intermediate water which has not only acquired new T–S properties as a result of upwelling and heating, but has also retained these new properties. A typical example is illustrated in Figure 8 where Station M was investigated on 2 December, 1952. The point A on the T–S diagram represents summer conditions in the surface layer of the coastal area, while A′ represents winter conditions. Some T–S points which occurred along the coast in winter lie completely outside the triangle because the salinity values are so abnormally low owing to dilution.

The coastal water in the St. Helena Bay area retains its characteristic features from year to year, particularly its salinity as a result of the constant values which occur in the intermediate waters. This fact creates the impression that the surface water along the coast is for the most part cut off from the remainder of the research area. This theory is to a certain extent confirmed by the fact that drift-cards cast into the sea in the coastal area are washed up on the beaches but those which are thrown in the sea further off shore are very rarely recovered.

The surface waters of the stations situated further away from the coast are as a rule warmer and saltier than the coastal waters. A characteristic of the T–S values of the surface water of the outer area is that during the summer months they lie along a line CB which has a steeper gradient than the line DC. This change is not as simple as might appear at first sight, since the following factors, *inter alia*, may contribute to it:—

(i) An increase in the mixing of the surface waters found near the coast and the surface waters occurring at deeper stations, or mixing along the section AB.

(ii) Warming of the surface layer of the sea by the sun in the outer area without any marked accompanying increase in salinity.

(iii) The appearance of a strong component of the Agulhas current in summer, as this water has a higher temperature and a lower salinity than in the case of the oceanic surface water of Atlantic origin.

It is the writer's opinion that, although all three of these factors play a part in the sharp difference found to exist between winter–spring and summer–autumn T–S characteristics, the influence of the presence or absence of Agulhas water is the main causal factor.

In Figure 8 and Plate 39 the average cycle of the seasonal T–S values is illustrated for the 0, 20 and 0–50 metres layer of the outer, intermediate and coastal areas. The values used in this representation are the seven-year average seasonal values.

B. Outer Area.

As will be seen from Figure 8 (Plate 39), the winter and spring T–S values for the 0, 20 and 0–50 metres layer lie fairly close to the point C which represents the values (14°C, 35·3‰).

In contrast with this, the summer and autumn values are considerably higher up in the diagram where the characteristic T–S line of the Agulhas water is to be found (see Clowes 1950, Figure IX, p. 37). It will be observed from the treatise by Clowes that, from west to east along the same latitude, the T–S characteristics of the surface layer gradually change, the reason for this being that the line or curve assumes a greater positive gradient towards the east, or in other words as the component of the Agulhas water increases. Preliminary analyses of the research cruise undertaken in February, 1957, reveal that there is the same tendency for the T–S curve to bend upon itself from north to south-east and then eastwards along an imaginary line counter to the general direction of the current.

It would seem, therefore, that there is reason to assume that in February, 1957, Agulhas water moved over the Atlantic surface water (which has a higher density) in the vicinity of Cape Point. This is confirmed by the appearance of a sub-surface current with a secondary salinity *minimum*, by the relatively thin layer of water with a high temperature indicated around the Cape, and by the fact that the thickness of the layer gradually decreased northward.

During the period February, 1957, to March, 1958, the area extending from Cape Agulhas in the south to Lambert's Bay in the north and seawards for a distance of 180 miles was investigated in an attempt to determine the seasonal movements of the Agulhas and Atlantic waters. These data are at present being processed and may perhaps clarify this point later on. It is not possible at this stage to say how far pure Agulhas water moved round Cape Point, but it is fairly certain that the waters along the west coast do contain a component of Agulhas water which gradually becomes less in quantity and more difficult to identify as a result of systematic mixing towards the north.

It is obvious that the southerly winds which start blowing more strongly and with greater frequency in the Cape Point area from spring onwards until a peak is reached in summer, have a direct bearing on the movement of Agulhas water round Cape Point. When the southerly winds abate and the northerly and westerly winds intensify towards winter in the Cape Point area, the Agulhas water will be forced back round Cape Point and more and more Atlantic water will penetrate the area.

It would appear, therefore, that these changes are to a certain extent transmitted to the outer stations of the routine area, this fact consequently explaining the sharp change in the summer–autumn and winter–spring characteristics of the water found in this region.

C. Intermediate Area.

From Figure 8 it can be seen that the T–S characteristics of the waters in the intermediate area lie between those of the outer and those of the coastal area. In the period from winter to spring, however, they correspond more closely with those of the outer area as a result of the prevailing winds which transport the surface waters from west to east. From summer to autumn the T–S points of the intermediate area lie approximately half-way in between.

D. Coastal Area.

When the T–S cycles of the coastal area are examined, it is noticed in the first place that the diagrams of the 0 and 20 metres are far apart on the plane. The relatively warm surface water is clearly only a very thin film at the top and therefore has a relatively small volume. It is doubtful whether this relatively small volume will, under the influence of southerly winds and consequent mixing, change the temperature of water at the surface in the outer area to any appreciable extent in the summer. In any case, if mixing has to occur mainly along *planes of density*, coastal surface water will not as a rule affect the upper 50 metres but will influence the waters found from 100 metres downwards in the outer area. What may happen, however, is that an extensive warm surface layer may be formed during periods of prolonged calm, reaching even as far as the outer area, and this layer may then, after wind and the consequent mixing of the water, heat the upper 50 metres of the outer area without necessarily causing a change in the salinity. Such a phenomenon is, however, regarded as an exception rather than a rule.

In the cycle of T–S characteristics of the surface water of the coastal area, the decline in salinity and the increase in temperature from spring to summer is clearly illustrated. The summer conditions persist until autumn, and with the transition from autumn to winter the temperature decreases while the salinity slightly increases.

The changes which occur at 20 metres and in the 0–50 metres layer are not, however, complicated by seasonal variation in the amount of heat supplied by the sun but by the incline and decline of the planes of density caused by the prevailing winds. Here the changes which occur with the transition from spring to summer and from autumn to winter lie on a straight line with a gradient which is nearly identical with that of CD.

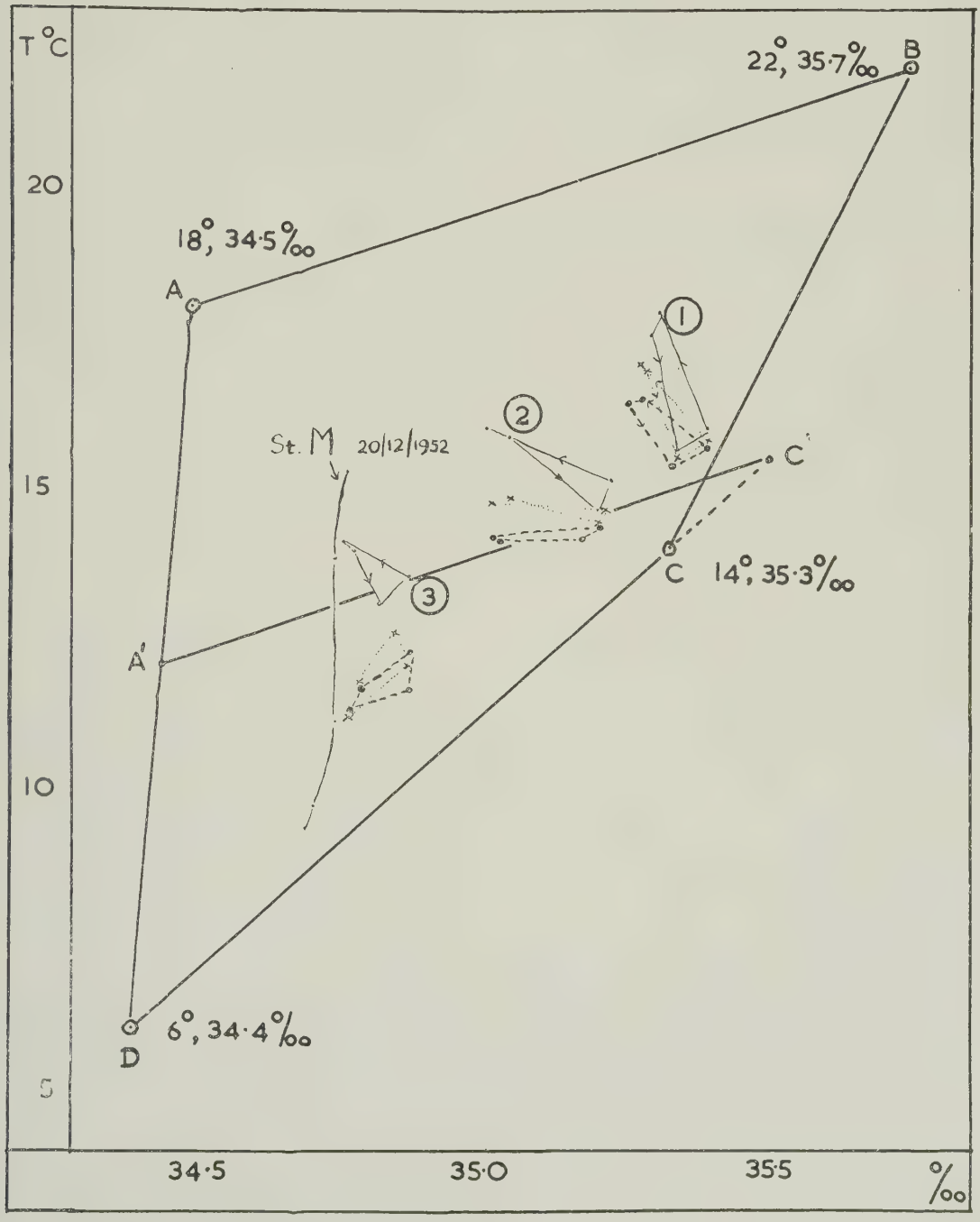

FIGURE 8.—The quadrangle in which most of the T–S points are found during 1952–56, with an example of a typical coastal water. Cycles of seasonal T–S values of the (1) outer area, (2) intermediate area, and (3) coastal area are also shown (refer to Plate 39).

It must be emphasised that the conclusions drawn are all based on average T–S values. In the analysis of seasonal values which occur from year to year, certain instances of early winter conditions are, for example, encountered during the autumn months, and the values for such an autumn will consequently differ appreciably from the average autumn values. Sometimes the conclusions may not be valid for a specific season of a particular year.

9. THE EFFECT OF VARYING ENVIRONMENTAL CONDITIONS ON THE FISHERY.

A. General.

In the introduction mention was made of the assumption that environmental conditions do indeed have an influence on the pilchard and maasbanker catches which vary from year to year. It stands to reason that, if the assumption is correct, a knowledge of environmental conditions can be built up in such a manner as to make it possible to recognise the relationship with fishery problems.

The following question now arises: How must one set about applying the knowledge of the hydrographical environment to the fishery?

The primary aim of the pilchard/maasbanker research is to promote conservation. If, for example, it were possible to determine scientifically in advance the maximum quantity of fish which may be caught during a particular year without any adverse effect on the potential catch in the future, the research would to a large extent have achieved its aim.

In order to achieve the main object of the programme, this problem must be divided into various subsections such as the life history of the species of fish concerned and the effect of various factors on this, as well as of other factors more directly connected with the presence of catchable fish in the fishing area. Since a number of publications on the life history of the fish (particularly the pilchard) have already appeared in the course of the research programme, attention is focused in the present treatise on factors, especially those of a hydrographical nature, which may affect the occurrence of these types of fish in the commercial fishing area. By fishing area is meant that part of the sea extending seawards for about 15–20 miles from the coast between Lambert's Bay in the north and False Bay in the south.

B. Factors which may Determine the Availability of Fish.

The size of the annual commercial catch depends *inter alia* on the size of the fish population, the availability of the fish, and the effort exerted to catch the fish. If it is assumed that the fishing effort and the size of the fish population have remained fairly constant over the past seven years, then attention can be given mainly to the varying availability of the fish and the possible reasons for this. By availability of the fish is meant the quantity of catchable fish in the fishing area.

With the information collected up to the present on the pilchard/maasbanker fishery, no more than a guess can be made at the circumstances which are responsible for the increase or decrease in the availability of the fish. The investigation is therefore conducted according to the induction method, various possible factors being studied in an attempt to find a relationship between such factors and the catches, and therefore also with the availability of the fish.

From the point of view of the physico-chemical environment, temperature and salinity are two of the most important characteristics. The phosphate and oxygen content, of course, also play vital parts, but these will not be discussed here.

C. Variations in the Total Catches made during a Fishing Year.

The pilchard and maasbanker catches, processed into seasonal and yearly values, as mentioned in the introduction, are given in Tables 23*a* and 23*b* of the annexure. It will be observed that the annual pilchard catch was exceptionally high in 1951/52, declined in 1952/53, fell still further in 1953/54, increased again in 1954/55, and then decreased in 1955/56. In 1956/57 it was more or less the same as in 1955/56. In the last-mentioned two years the catch amounted to less than 100,000 short tons, whereas in the previous years it had always exceeded this figure.

The annual maasbanker catches steadily increased from 1950/51 to 1953/54, fell sharply in 1954/55 (88,000 tons), decreased still further in 1955/56 (46,000 tons), and then increased again in 1956/57 (97,000 tons). The 100,000 tons mark was exceeded during the first four catch years, but not during the last three.

In the compilation of the tables it was noticed that the pilchard catches made in autumn not only constituted the major part of the annual catch but also showed a variation which corresponded exactly with that in the *annual* pilchard catch. This agreement is illustrated in Figure 11 and will be discussed at a later stage.

D. Environmental Factors and Catches.

In Plates 40 and 41 the deviation of the annual pilchard and maasbanker catches from their respective seven-year average values is represented on a series of composite histograms on which the corresponding temperature and salinity deviations are also indicated for the whole, outer, intermediate and coastal areas for the same catch year.

From these two plates it is not possible to establish the existence of a relationship between the temperature or salinity of the whole or a portion of the routine area, but it would nevertheless seem that sometimes a disguised connection does occur. The temperature and salinity values recorded during a catch year therefore do not appear to have any relationship with the availability of fish in the fishing area during the same year. Since the fish caught along the west coast are for the most part mature, this may mean that the variation in temperature and salinity as recorded in this area is in no way related to the availability of mature pilchards and maasbankers in the research area. If these two characteristics of the waters in the research area exert an influence on the presence of immature fish, it can be expected, however, that the temperature and/or salinity have a bearing on the catches made a year or so later.

In order to make a further analysis of such a possibility, tables were compiled to illustrate the change in temperature and salinity as well as the pilchard and maasbanker catches from one year to the next. An increase was indicated by means of a plus sign and a decrease by a minus sign. Such a table is given here as an example in which the variation in temperature at 0, 20 and 0–50 metres in the outer area is illustrated together with the variation in the annual pilchard catch:—

Year.	1950/51 to 1951/52.	1951/52 to 1952/53.	1952/53 to 1953/54.	1953/54 to 1954/55.	1954/55 to 1955/56.	1955/56 to 1956/57.
Pilchard catch	+	−	−	+	−	+
Temperature—						
0 Metres	−	−	+	−	+	+
20 Metres	−	−	+	−	+	+
0–50 Metres	−	−	+	−	+	+

The foregoing example was selected because it is one of two instances where a positive agreement was established. In the first place it will be noted that the variation in the annual values of the temperature follow identical trends at 0, 20 and 0–50 metres, and secondly that the variation in temperature is exactly duplicated after the lapse of one catch year by the annual pilchard catches; in other words, if the temperature declines from 1950/51 to 1951/52, then the pilchard catch from 1951/52 to 1952/53 also decreases, etc. (It was also found that, where the temperature rose from 1955/56 to 1956/57, the pilchard catch likewise increased from 1956/57 to 1957/58, although the period 1957/58 falls outside the period under review.)

In order to examine in greater detail the agreement now established, the composite histogram of the deviations from the 0, 20 and 0–50 metres temperature of the outer area for the year **K** together with the deviation of the annual pilchard catch made in the year **K + I** is given in Plate 42*a*. This diagram shows that the relationship between the temperature of the outer area and the pilchard catch may not only be qualitative but also quantitative.

The temperature of the outer area (0–50 metres) is used in Figure 9 to illustrate further the connection with the catches as a scatter diagram. *It is observed that the annual value of the* 0–50 *metres in the outer area during a given year and the pilchard catch of the following year may be represented as a linear relationship for the seven-year period covered by the report.* If this striking agreement could be laid down as a general rule, it would enable a prediction to be made of the pilchard catches for a certain year with the aid of a knowledge of the temperature of the 0–50 metres layer in the outer area during the preceding year—an extremely valuable aid in the conservation policy.

On the strength of the correlation found in the case of pilchard catches, an attempt was made to discover a similar phenomenon in respect of maasbanker catches, and this was also rewarded with success.

It appears that a certain degree of agreement is obtained by comparing the annual value of the temperature at 0 and 20 metres of the whole area

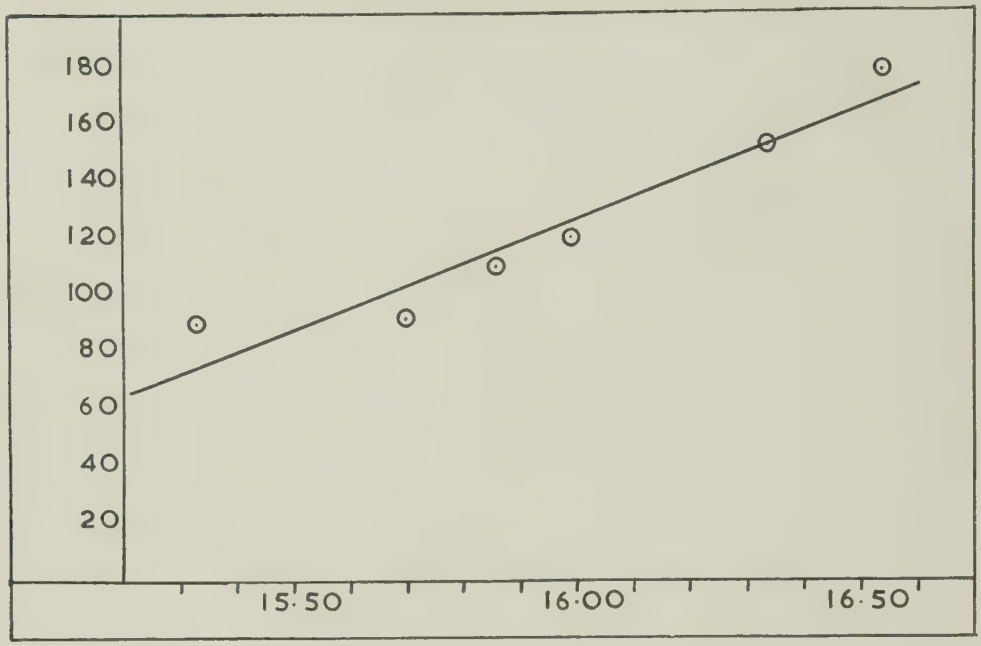

FIGURE 9.—Scatter diagram of the annual 0–50 metres temperature of the outer area (X) and annual pilchard catch (Y) of the following year. The line Y=76, 517X—1,096,311 is also shown.

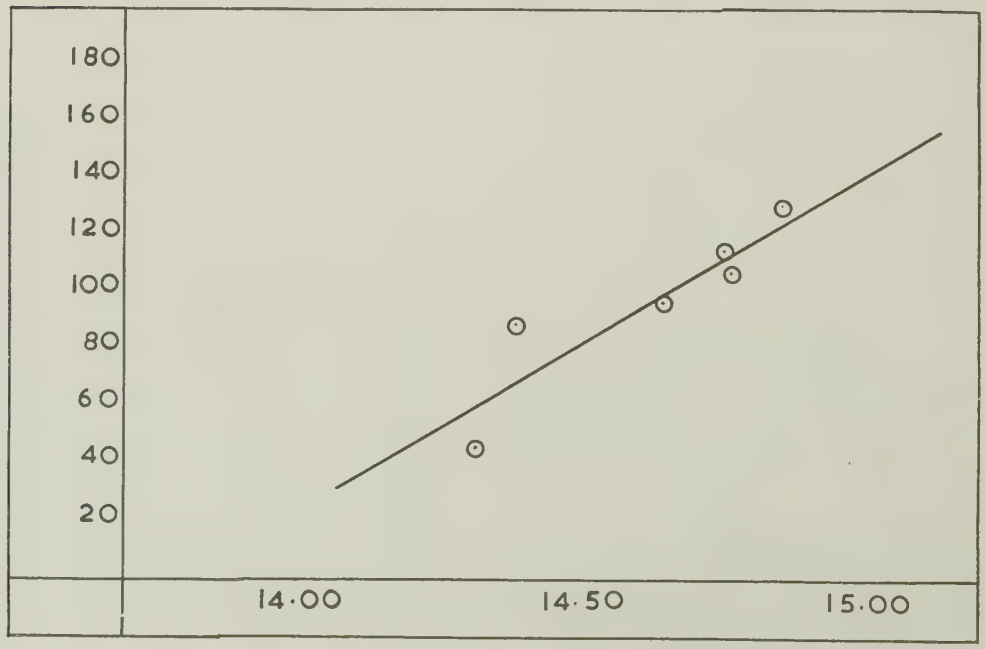

FIGURE 10.—Scatter diagram of the 20 metres annual temperature in the intermediate area (X) and the annual maasbanker catch (Y) for the following year. The line Y=119,866X—1,655,860 is also shown.

with the maasbanker catch of the following year. Since the temperatures of the intermediate area generally tend to vary in the same way as those of the whole area (especially over the upper 50 metres) the temperature variations in the intermediate area were also compared with the maasbanker catches. It appears that the variations in the annual values of the temperature at 20 and 0–50 metres, but especially at 20 metres, are duplicated the next year by the maasbanker catches. This relationship, which is illustrated in Plate 42*b*, is not perhaps as marked as that found in the case of pilchard catches. The scatter diagram of the 20 metres temperature in the intermediate area and of the annual maasbanker catches is shown in Figure 10 from which it is clear that a straight line can be drawn through most of the points.

To verify these agreements the data are also statistically analysed.

10. STATISTICAL ANALYSIS.

(*a*) Pilchard Catches and the Temperature of the Outer Area.

Let X represent the temperature of the 0–50 metres of the outer area in the year K, and Y the pilchard catch in the year K + 1. The averages of the temperature and the catches are then represented by:—

$$\overline{X} = \frac{\Sigma X}{n}$$

$$\overline{Y} = \frac{\Sigma Y}{n}$$

where n is the number of cases under discussion.

The equation of the straight line which indicates the relationship between the catches and the temperature, $Y = a + bX$, is obtained by applying a method of "least squares" to the data with the aid of the following equations which determine the values of the co-ordinates a and b:—

$$b = \frac{\Sigma XY - n\overline{X}.\overline{Y}}{\Sigma X^2 - n\overline{X}^2} \quad \ldots\ldots\ldots\ldots\ldots \quad (1).$$

$$a = \overline{Y} - b\overline{X} \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (2).$$

By substituting the values for X, Y, XY, $\overline{X}$ and $\overline{Y}$ in equation (1), *b* is determined, after which *a* is obtained by substitution in (2). The equation of the straight line thus obtained is expressed by:—

$$Y = 76{,}517\ X - 1{,}096{,}311 \quad \ldots\ldots\ldots \quad (3).$$

The values of the temperature in the different years are substituted in equation (3) and the estimated catches thus obtained are compared in the following table with the actual catches made:—

Year.	Temperature. °C.	*Actual Catch (A). (short tons)	*Estimated Catch (B). (short tons)	Fishing Year.	Difference (A–B). (short tons)	Percentage Difference.
1950/51	16·54	179,400	169,300	1951/52	+ 10,150	+ 6·0
1951/52	16·34	153,700	154,000	1952/53	— 300	— 0·2
1952/53	15·86	110,300	117,200	1953/54	— 6,900	— 5·9
1953/54	15·99	121,300	127,200	1954/55	— 5,900	— 4·6
1954/55	15·33	91,800	76,700	1955/56	+ 15,100	+ 19·7
1955/56	15·70	92,900	105,000	1956/57	— 12,100	— 11·5

*Note.—In the calculation of equations (3) and (8) the catch figures used were not rounded off. In the two tables in which the estimated catches are compared with the actual catches, both were rounded off to the nearest 100 tons.

To test the relationship, the correlation coefficient:—

$$r = \frac{\Sigma XY - n\overline{X}.\overline{Y}}{\sqrt{(\Sigma X^2 - n\overline{X}^2)\,(\Sigma Y^2 - n\overline{Y}^2)}} \quad \ldots\ldots \quad (4).$$

is determined by substituting the various values in equation (4). It is found that r = 0·95.

(*b*) Maasbanker Catches and the Temperature of the Intermediate Area.

The relationship which is suspected to exist between the maasbanker catches and the temperature of the intermediate area, especially at 20 metres, was in this case first tested by determining the degree of correlation. This was done with the aid of equations (5), (6) and (7), which in reality are merely variations of equation (4) used in the

case of the pilchard catches and now expressed by:—

$$r_{X,Y} = \frac{\Sigma(X - \overline{X})\ (Y - \overline{Y})}{n.\sigma_X.\ \sigma_Y} \quad \ldots\ldots\ldots\ (5).$$

where n = the number of cases;

$\overline{X}$ = the average value of X;

X = the 20 metres temperature in the year **K**.

Y = the maasbanker catch in the year **K** + **1**, and

$\overline{Y}$ = the average maasbanker catch.

$$\sigma_X = \sqrt{\frac{(X - \overline{X})^2}{n}} \quad \ldots\ldots\ldots\ (6).$$

$$\sigma_Y = \sqrt{\frac{(Y - \overline{Y})^2}{n}} \quad \ldots\ldots\ldots\ (7).$$

The calculated value, $r_{X,Y} = 0.92$, points to a good relationship between the maasbanker catches and the temperature values at 20 metres in the intermediate area during the preceding year.

With the aid of equations (1) and (2) the straight line denoting the relationship is then defined by the following equation:—

$$Y = 119{,}866\ X - 1{,}655{,}860 \quad \ldots\ldots\ldots\ (8).$$

When the temperature values of a given year are now substituted in equation (8), the estimated catches, as given in the following table, are obtained:—

Year.	Temperature. °C	*Actual Catch (A). (short tons)	Estimated Catch (B). (short tons)	Fishing Year.	Difference. (A–B). (short tons)	Percentage Difference.
1950/51	14·77	106,900	114,600	1951/52	— 7,700	— 6·7
1951/52	14·76	114,600	113,400	1952/53	+ 1,200	+ 1·1
1952/53	14·86	130,400	125,300	1953/54	+ 5,100	+ 4·1
1953/54	14·39	88,300	69,000	1954/55	+ 19,300	+ 28·0
1954/55	14·32	46,100	60,600	1955/56	— 14,500	— 23·9
1955/56	14·65	96,800	100,200	1956/57	— 3,400	— 3·4

*Note.—In the calculation of equations (3) and (8) the catch figures used were not rounded off. In the two tables in which the estimated catches are compared with the actual catches, both were rounded off to the nearest 100 tons.

From the foregoing statistical analysis it is clear that for the period covered by the report—

(*a*) the pilchard catches during the commercial year are in linear relationship with the annual value of the temperature in the upper 50 metres of the outer area during the preceding commercial year; and

(*b*) the maasbanker catches during the commercial year are in linear relationship with the annual value of the temperature at 20 metres in the intermediate area during the preceding year.

(c) Discussion.

Although the two correlations established by the statistical analysis are excellent, it does not necessarily follow that they can be generalised for the future. It goes without saying, therefore, that the investigation of the characteristics of the routine area will have to be continued in order to examine the relationships between temperature and catches in greater detail.

In the meanwhile the fact that such relationships have already been found to exist for a period of seven years will serve to stimulate further investigation of the phenomena which may possibly be responsible for these relationships.

In so far as the pilchard is concerned, it has already been seen that the autumn catch not only constitutes the major portion of the annual catch, but that it also varies in the same manner (Figure 11). It appears furthermore that the autumn value of the 0–50 metres temperature of the outer area is linearly related in the year **K** to the autumn pilchard catch made in the year **K** + 1. This relationship is expressed by the equation

$$Y = 26{,}773\ X - 367{,}063,$$

where Y is the autumn catch and X is the 0–50 metres temperature of the outer area. The correlation coefficient amounts to 0·94. A similar but weaker correlation is also found to exist between the summer value of the 0–50 metres temperature in the outer area and the pilchard catch in the following summer. What is more important, however, is that, when the summer and autumn are taken together, the above temperature values of the outer area are found to be correlated with

the catches during the summer and autumn (combined total) of the following year. The correlation coefficient amounts to 0·93 and the equation indicating the linear relationship is—

$Y = 40{,}206\ X - 571{,}319$, where Y is the pilchard catch for summer and autumn combined and X is the average summer–autumn temperature of the 0–50 metres in the outer area for the preceding year.

For the other two seasons there is no such correlation whatever.

It has already been mentioned that the waters found in the outer part of the research area during summer and autumn are very similar in their characteristics, whereas they differ considerably from waters encountered in this area during winter and spring. The difference in temperature found to exist in the 0–50 metres layer of the outer area between summer–autumn and winter-spring may furthermore to a large extent be ascribed to the seasonal shifting of the Agulhas and Atlantic surface waters relative to each other. As a direct result of this it also follows that variations in the flow of the Agulhas current from one year to another may contribute to the variation in annual temperature values in the upper 50 metres of the outer area. In the writer's opinion a larger or stronger flow of the Agulhas current will bring about an increase in temperature in the same year and *vice versa*.

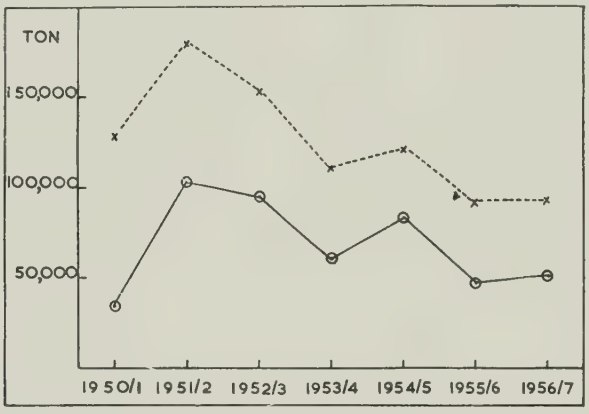

FIGURE 11.—Comparison of the autumn and total catches of the same commercial year. Broken line represents the variation of the total catch.

On a number of occasions at sea it was observed that large shoals of fish (unfortunately of unknown species but suspected to have been either pilchards or maasbankers) were present in the immediate vicinity when the thermograph on board the R.S. *Africana II* registered a sharp rise or fall in temperature in the upper 10 fathoms of the sea. The occurrence of these shoals was sometimes noticed with the aid of the records of the echo-sounding apparatus or by the presence of large numbers of diving predatory sea-birds (gannets).

Since many of the world's largest fisheries are situated in areas where there is a confluence of warm and cold waters in the sea and where considerable differences in temperature occur over relatively short distances, the thought occurred that the presence of such differences in and around the research area may possibly have important effects on the pilchard/maasbanker fishery. The formation and existence of zones in which rapid temperature changes occur may possibly serve as a barrier against which the migratory movement of the fish may be checked. The fish will then accumulate as it were in the transition area unless a stronger urge should cause them to break through the barrier.

When the Agulhas current moves closer and closer to the Cape Point area along the south coast of South Africa in summer, the forefront of this current will continually create transitional temperature areas. The reason for this is that the Agulhas water is relatively warm and that the coastal waters which it meets in its flow are relatively cold as a result of conditions which preceded the summer. It is indeed only as a result of the Agulhas current's influence that the temperature of these coastal waters increases. The greatest difference between the Agulhas current and coastal water will be found, however, as soon as this current reaches Cape Point where it comes in

contact with the cold upwelled waters of the west coast. If this movement gradually traps fish as a result of the shifting of the barrier zone of temperature, then the numerical strength and distribution of the fish will *ipso facto* be subject to the impetus which characterised the Agulhas current in that year and of the original number of fish which were present in the area traversed by the current.

Increased activity in the Agulhas current during a certain year will, if the foregoing theories are correct, cause a higher temperature in the outer area during the same year and, according to expectations, also increase the availability of fish. In actual fact, however, a higher temperature in the outer area is followed by a higher catch only during the ensuing year. Apparently the fish are not available to the fishery in the same year as that in which they experience the most favourable conditions in the outer area.

Possibly a fuller knowledge of the rate of growth of the fish and their lines of behaviour such as migratory movements, feeding habits and collecting in shoals will throw more light on this apparent connection between the activity of the Agulhas current and the pilchard and maasbanker catches.

11. CONCLUSIONS.

1. During the period under review the years 1954/55 and 1955/56 were relatively colder than any of the other years in so far as the temperature of the 0–50 metres layer in the routine area is concerned.
2. The annual averages of the temperature and salinity ranges do not show any considerable deviations from year to year.
3. It would appear that the temperature of the upper 50 metres completed a cycle in the seven-year period.
4. The water discharged into the sea by the Berg River contributes to a local decrease in salinities near the coast. The effect of this factor varies from year to year.
5. In the outer area it appears that waters encountered in summer–autumn correspond and that they differ from those found in winter–spring.
6. In the coastal area the waters have for the most part the same origin throughout the year, namely the upwelled waters which to a greater or lesser extent have been heated by the sun.
7. Preliminary work indicates that the influence of the Agulhas current can be detected in the routine area during the summer and autumn seasons. This influence may vary from year to year.
8. The average annual temperature variation in the upper 50 metres of the outer area is almost identically duplicated in the total pilchard catch after the lapse of one year.
9. The average annual temperature variation at 20 metres in the intermediate area is almost identically duplicated in the total maasbanker catch after the lapse of one year.
10. The autumn catch, which constitutes the major portion of the annual catch, varies in exactly the same manner as the total annual pilchard catch. It is also related to the temperature of the upper 50 metres recorded during autumn of the previous year.
11. Further work is necessary in order to verify these correlations over a longer period.

12. ACKNOWLEDGMENTS.

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(i) 22nd Annual Report for the Year ended December, 1950, Pretoria, 1952.

(ii) 23rd Annual Report for the Year ended December, 1951, Pretoria, 1953.

(iii) 24th Annual Report for the period 1st January, 1952–31st March, 1953, Pretoria, 1954.

(iv) 25th Annual Report for the period 1st April, 1953–31st March, 1954, Pretoria, 1955.

(v) 26th Annual Report for the period 1st April, 1954–31st March, 1955, Pretoria, 1956.

(vi) 27th Annual Report for the period 1st April, 1955–31st March, 1956, Pretoria, 1957.

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(viii) 29th Annual Report for the period 1st April, 1957–31st March, 1958 (compilation pending).

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(i) Annual Report No. U.G. 52/1952, Pretoria, 1952.

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TABLE 1.

MONTHLY, SEASONAL AND ANNUAL VARIATIONS OF SURFACE TEMPERATURE FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1950	September.....	15·54	15·47	15·17	15·42	15·57	15·43	15·43	14·94	15·24	14·74	14·78	14·86
1950	October.....	17·56	16·85	17·07	17·25	18·44	18·29	17·58	16·84	16·29	16·85	16·35	16·61
1950	November.....	16·90	17·09	17·35	17·02	17·44	17·61	17·23	15·97	16·56	17·21	14·79	14·07
1950	**Spring.....**	**16·67**	**16·47**	**16·53**	**16·56**	**17·15**	**17·11**	**16·75**	**15·92**	**15·86**	**16·43**	**15·31**	**15·18**
1950	December.....	17·77	17·86	17·58	17·35	17·78	17·99	17·72	16·07	16·10	18·09	16·11	16·39
1951	January.....	17·76	16·03	17·11	15·56	19·16	18·15	17·29	16·91	16·66	16·26	13·61	15·16
1951	February.....	16·80	17·41	18·36	14·89	17·20	16·09	16·79	17·69	16·89	15·89	13·41	14·75
1950/1	**Summer.....**	**17·44**	**17·10**	**17·68**	**15·93**	**18·05**	**17·41**	**17·27**	**16·89**	**16·55**	**16·75**	**14·38**	**15·43**
1951	March.....	17·89	18·39	16·33	15·25	18·63	17·06	17·26	14·45	14·23	15·45	14·88	14·93
1951	April.....	19·63	19·57	18·31	16·05	19·66	19·43	18·78	16·19	15·74	16·41	15·11	16·93
1951	May.....	19·73	19·19	18·27	18·67	20·21	20·09	19·36	17·83	18·05	17·97	16·11	16·64
1951	**Autumn.....**	**19·08**	**19·05**	**17·64**	**16·66**	**19·50**	**18·86**	**18·47**	**16·16**	**16·01**	**16·61**	**15·37**	**16·17**
1951	June.....	18·21	18·27	18·32	16·56	17·98	17·49	17·81	15·75	15·90	15·55	14·18	15·70
1951	August.....	15·18	15·03	14·08	15·13	15·33	15·28	15·01	14·18	14·38	14·98	14·68	14·88
1951	**Winter.....**	**16·69**	**16·65**	**16·20**	**15·85**	**16·65**	**16·39**	**16·41**	**14·97**	**15·14**	**15·27**	**14·43**	**15·13**
1950/1	**Comm. Year....**	**17·54**	**17·38**	**17·09**	**16·29**	**17·95**	**17·54**	**17·30**	**16·07**	**15·96**	**16·35**	**14·91**	**15·51**
1951	September.....	14·88	15·08	14·73	15·06	14·98	15·13	14·98	13·98	13·98	15·18	15·28	14·28
1951	October.....	15·43	15·43	14·68	14·98	15·28	14·98	15·13	14·68	15·18	15·08	15·58	13·57
1951	November.....	15·63	16·29	15·26	15·78	15·70	16·34	15·83	14·78	14·83	15·88	15·68	14·98
1951	**Spring.....**	**15·31**	**15·60**	**14·89**	**15·27**	**15·32**	**15·48**	**15·31**	**14·48**	**14·66**	**15·38**	**15·51**	**14·28**
1951	December.....	16·89	16·19	16·04	16·19	17·37	17·25	16·65	15·33	17·01	16·41	15·33	15·48
1952	January.....	21·51	20·81	20·91	21·29	19·11	21·46	20·85	18·31	19·51	18·10	20·26	16·69
1952	February.....	18·34	18·35	19·21	18·00	18·83	18·91	18·61	17·34	18·00	18·12	19·31	16·09
1951/2	**Summer.....**	**18·91**	**18·45**	**18·72**	**18·49**	**18·44**	**19·21**	**18·70**	**16·99**	**18·17**	**17·54**	**18·30**	**16·09**
1952	March.....	18·30	19·06	18·60	19·56	20·01	19·61	19·19	17·19	18·02	17·34	16·14	17·24
1952	April.....	17·09	18·30	18·41	19·66	19·56	19·61	18·77	16·25	16·50	15·78	17·52	15·13
1952	May.....	16·68	16·89	16·39	16·68	17·00	15·47	16·52	14·58	14·96	14·39	15·28	14·74
1952	**Autumn.....**	**17·32**	**18·08**	**17·80**	**18·63**	**18·86**	**18·23**	**18·16**	**16·01**	**16·49**	**15·84**	**16·31**	**15·70**
1952	June.....	18·00	17·20	16·29	18·10	18·15	18·27	17·67	16·89	14·45	17·90	16·68	17·80
1952	July.....	16·89	16·64	16·39	15·28	16·74	15·88	16·30	14·98	15·13	14·98	14·18	15·28
1952	August.....	14·88	14·68	14·78	14·98	14·93	15·43	14·95	14·08	15·13	14·68	15·08	14·33
1952	**Winter.....**	**16·59**	**16·17**	**15·82**	**16·12**	**16·61**	**16·53**	**16·31**	**15·32**	**14·90**	**15·85**	**15·31**	**15·80**
1951/2	**Comm. Year....**	**17·04**	**17·08**	**16·81**	**17·13**	**17·31**	**17·36**	**17·12**	**15·70**	**16·06**	**16·15**	**16·36**	**15·47**

Individual Stations and Sub-Areas, September, 1950—August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1950	September.....	14·95	14·69	14·89	13·62	13·56	14·19	14·55	14·40	13·76	14·13	14·03	14·75
1950	October.....	16·71	16·20	16·55	15·66	14·85	15·62	15·79	15·47	14·33	15·42	15·31	16·42
1950	November.....	16·25	14·71	15·65	13·83	12·87	13·40	14·63	12·67	13·05	12·54	13·28	15·30
1950	**Spring.....**	**15·97**	**15·20**	**15·70**	**14·37**	**13·76**	**14·40**	**14·99**	**14·18**	**13·71**	**14·03**	**14·21**	**15·49**
1950	December.....	15·27	15·78	16·26	14·85	13·43	14·25	15·63	12·27	12·99	14·53	13·99	15·90
1951	January.....	15·31	16·76	15·81	15·83	15·96	14·56	15·06	13·61	14·72	12·45	14·60	15·83
1951	February.....	16·08	15·50	15·74	15·42	12·42	13·69	14·33	13·67	12·51	12·23	13·47	15·26
1950/1	**Summer.....**	**15·55**	**16·01**	**15·94**	**15·37**	**13·94**	**14·17**	**15·01**	**13·18**	**13·41**	**13·07**	**14·02**	**15·67**
1951	March.....	13·63	13·85	14·49	13·79	13·11	13·65	12·90	12·40	12·25	12·67	12·97	14·79
1951	April.....	14·69	14·65	15·67	14·91	14·43	13·46	13·40	12·94	13·65	12·30	13·73	15·92
1951	May.....	16·51	15·53	16·95	15·95	15·93	15·73	15·31	15·61	15·93	16·55	15·86	17·29
1951	**Autumn.....**	**14·94**	**14·68**	**15·70**	**14·88**	**14·49**	**14·28**	**13·87**	**13·65**	**13·94**	**14·17**	**14·18**	**16·00**
1951	June.....	15·27	14·23	15·18	13·73	13·67	13·57	13·73	14·01	13·67	14·73	13·87	15·51
1951	August.....	14·48	13·27	14·41	13·27	12·97	13·47	12·87	13·88	12·22	14·37	13·29	14·20
1951	**Winter.....**	**14·87**	**13·75**	**14·79**	**13·50**	**13·32**	**13·52**	**13·30**	**13·95**	**12·95**	**14·55**	**13·58**	**14·85**
1950/1	**Comm. Year....**	**15·38**	**15·01**	**15·60**	**14·62**	**13·93**	**14·14**	**14·38**	**13·72**	**13·55**	**13·90**	**14·04**	**15·56**
1951	September.....	13·68	13·68	14·29	13·27	12·67	13·86	13·88	13·47	13·47	13·98	13·51	14·23
1951	October.....	14·58	15·18	14·84	14·58	13·70	13·37	13·29	13·73	12·67	14·18	13·65	14·51
1951	November.....	14·86	14·03	15·01	12·22	12·42	12·72	15·38	12·92	14·69	13·07	13·35	14·67
1951	**Spring.....**	**14·37**	**14·30**	**14·71**	**13·36**	**12·93**	**13·32**	**14·18**	**13·37**	**13·61**	**13·74**	**13·50**	**14·47**
1951	December.....	16·49	13·88	15·70	13·05	12·65	11·97	12·22	13·94	11·79	16·44	13·15	15·10
1952	January.....	17·90	15·38	18·02	13·47	11·47	13·47	17·19	12·12	14·48	17·44	14·23	17·54
1952	February.....	16·09	16·68	17·38	17·49	16·69	16·12	16·19	14·78	13·47	17·29	16·00	17·27
1951/2	**Summer.....**	**16·83**	**15·31**	**17·03**	**14·67**	**13·60**	**13·85**	**15·20**	**13·61**	**13·25**	**17·06**	**14·46**	**16·63**
1952	March.....	17·14	16·64	17·10	15·68	12·02	14·78	15·10	14·68	14·28	16·57	14·73	16·90
1952	April.....	14·87	13·82	15·70	14·48	12·54	14·48	14·28	13·69	13·12	15·48	14·01	16·03
1952	May.....	14·60	13·42	14·57	13·24	12·36	12·89	13·08	12·77	14·32	12·95	13·09	14·63
19 2	**Autumn.....**	**15·54**	**14·63**	**15·79**	**14·47**	**12·31**	**14·05**	**14·15**	**13·71**	**13·91**	**15·00**	**13·94**	**15·85**
1952	June.....	15·18	14·58	16·21	12·37	12·27	12·47	13·02	12·27	13·98	14·48	12·98	15·52
1952	July.....	14·83	13·57	14·71	13·02	12·42	12·27	13·47	12·32	12·27	13·83	12·80	14·52
1952	August.....	13·68	13·47	14·35	13·88	12·97	12·97	12·87	13·02	12·57	14·18	13·21	14·13
1952	**Winter.....**	**14·56**	**13·87**	**15·09**	**13·09**	**12·55**	**12·57**	**13·12**	**12·54**	**12·94**	**14·16**	**13·00**	**14·72**
1951/2	**Comm. Year....**	**15·33**	**14·5 :**	**15·66**	**13·89**	**12·85**	**13·45**	**14·16**	**13·31**	**13·43**	**14·99**	**13·73**	**15·42**

TABLE 1 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VARIATIONS OF SURFACE TEMPERATURE FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1952	September.....	15·88	15·38	15·68	15·63	15·42	15·68	15·61	15·08	15·24	15·53	16·49	15·48
1952	October.....	16·21	15·84	15·85	15·80	15·78	15·88	15·89	15·14	15·66	15·78	15·28	15·50
1952	November.....	18·14	17·70	17·94	17·90	17·69	16·89	17·71	17·54	17·13	18·00	17·44	18·00
1952	**Spring.....**	**16·74**	**16·31**	**16·49**	**16·44**	**16·30**	**16·15**	**16·41**	**15·92**	**16·01**	**16·44**	**16·40**	**16·33**
1952	December.....	18·80	16·59	17·01	17·19	18·74	17·70	17·67	15·88	15·18	14·86	14·39	15·75
1953	January.....	19·03	19·36	19·61	18·48	20·01	20·57	19·51	17·80	17·21	18·78	18·38	18·40
1953	February.....	16·48	16·94	18·30	16·89	16·39	16·72	16·95	13·58	15·09	14·90	15·07	13·60
1952/3	**Summer.....**	**18·10**	**17·63**	**18·31**	**17·52**	**18·38**	**18·33**	**18·04**	**15·75**	**15·83**	**16·18**	**15·95**	**15·92**
1953	March.....	17·70	18·24	18·32	17·57	16·70	18·20	17·79	17·88	18·50	18·00	16·29	17·49
1953	April.....	16·20	17·41	17·49	15·58	15·68	15·64	16·33	15·03	15·68	15·96	14·38	15·28
1953	May.....	17·49	17·18	16·05	17·70	17·60	17·70	17·29	15·44	16·89	16·29	17·09	15·99
1953	**Autumn.....**	**17·13**	**17·61**	**17·29**	**16·95**	**16·66**	**17·18**	**17·14**	**16·12**	**17·02**	**16·75**	**15·92**	**16·25**
1953	June.....	14·90	15·03	15·45	15·21	15·94	15·90	15·40	15·03	14·58	14·20	14·45	14·41
1953	July.....	15·57	15·38	15·18	15·52	15·58	15·63	15·48	13·86	15·26	15·39	16·09	14·59
1953	August.....	14·55	14·38	14·29	15·08	14·88	14·83	14·67	13·82	14·02	14·88	14·18	13·62
1953	**Winter.....**	**15·01**	**14·93**	**14·97**	**15·27**	**15·47**	**15·45**	**15·18**	**14·24**	**14·62**	**14·82**	**14·91**	**14·21**
1952/3	**Comm. Year....**	**16·75**	**16·62**	**16·76**	**16·55**	**16·70**	**16·78**	**16·69**	**15·51**	**15·87**	**16·05**	**15·79**	**15·67**
1953	September.....	15·83	16·29	14·98	14·68	15·89	15·65	15·55	14·58	14·58	14·78	14·50	15·71
1953	October.....	15·70	15·88	13·98	16·39	15·99	16·70	15·77	13·99	16·19	16·33	16·29	13·68
1953	November.....	16·18	17·33	16·97	17·48	18·00	18·10	17·34	15·01	16·03	16·20	15·21	14·87
1953	**Spring.....**	**15·90**	**16·50**	**15·31**	**16·18**	**16·63**	**16·82**	**16·22**	**14·53**	**15·60**	**15·77**	**15·33**	**14·75**
1953	December.....	15·92	14·93	17·42	13·67	16·99	15·45	15·73	15·67	15·47	12·95	12·44	12·96
1954	January.....	18·90	17·50	15·59	16·07	18·61	18·31	17·50	17·19	17·29	14·67	14·15	14·37
1954	February.....	20·62	20·81	20·54	21·32	21·48	21·52	21·05	18·74	17·41	20·61	15·17	18·00
1953/4	**Summer.....**	**18·48**	**17·75**	**17·85**	**17·02**	**19·03**	**18·43**	**18·09**	**17·20**	**16·72**	**16·08**	**13·92**	**15·11**
1954	March.....	17·79	18·76	18·80	15·47	17·91	18·65	17·90	19·19	18·90	15·37	14·75	16·68
1954	April.....	19·03	18·62	17·18	18·64	19·08	19·14	18·61	15·22	14·87	18·70	14·73	17·08
1954	May.....	17·73	17·73	16·32	17·59	17·69	17·29	17·39	14·91	16·97	14·99	16·07	16·85
1954	**Autumn.....**	**18·18**	**18·37**	**17·43**	**17·23**	**18·23**	**18·36**	**17·97**	**16·44**	**16·91**	**16·35**	**15·18**	**16·87**
1954	June.....	15·83	15·13	15·82	16·17	16·72	15·98	15·94	14·45	14·85	16·26	15·46	15·86
1954	July.....	15·05	14·77	14·93	14·92	15·03	15·13	14·97	14·61	14·52	14·57	14·72	14·41
1954	August.....	14·47	14·97	14·45	14·89	14·85	15·10	14·79	13·99	13·38	14·20	14·18	14·05
1954	**Winter.....**	**15·12**	**14·96**	**15·07**	**15·33**	**15·53**	**15·40**	**15·23**	**14·35**	**14·25**	**15·01**	**14·79**	**14·77**
1953/4	**Comm. Year....**	**16·92**	**16·89**	**16·41**	**16·44**	**17·35**	**17·25**	**16·88**	**15·63**	**15·87**	**15·80**	**14·81**	**15·38**

Individual Stations and Sub-Areas, September, 1950—August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1952	September	14·43	14·78	15·29	16·17	15·78	14·54	14·53	14·35	14·48	15·68	15·07	15·31
1952	October	15·48	15·63	15·49	15·18	12·97	14·33	14·58	14·88	12·95	15·08	14·28	15·19
1952	November	17·32	17·04	17·49	17·36	16·93	17·53	16·93	17·36	14·29	17·49	16·84	17·33
1952	**Spring**	**15·74**	**15·82**	**16·09**	**16·24**	**15·23**	**15·47**	**15·35**	**15·53**	**13·91**	**16·08**	**15·40**	**15·95**
1952	December	14·69	14·76	15·07	15·48	15·28	14·65	13·76	14·19	13·07	14·28	14·39	15·61
1953	January	17·09	16·26	17·70	16·29	12·78	14·42	14·60	13·02	12·97	16·99	14·44	17·10
1953	February	13·65	13·87	14·25	13·47	14·18	13·27	12·97	12·67	11·95	12·73	13·03	14·64
1952/3	**Summer**	**15·14**	**14·96**	**15·68**	**15·08**	**14·08**	**14·11**	**13·78**	**13·29**	**12·66**	**14·67**	**13·95**	**15·78**
1953	March	17·80	18·14	17·73	17·83	17·65	14·79	16·79	15·25	14·33	14·86	15·93	17·12
1953	April	14·88	14·72	15·13	14·96	14·27	15·08	14·66	14·71	14·68	13·88	14·61	15·31
1953	May	14·90	14·57	15·89	14·47	14·28	13·84	13·98	14·07	13·68	15·01	14·19	15·71
1953	**Autumn**	**15·86**	**15·81**	**16·25**	**15·75**	**15·40**	**14·57**	**15·14**	**14·68**	**14·23**	**14·58**	**14·91**	**16·05**
1953	June	14·58	14·21	14·49	13·42	12·67	12·47	14·38	13·11	11·77	14·34	13·17	14·30
1953	July	13·86	13·98	14·72	12·57	12·17	12·37	14·52	12·77	13·78	13·80	13·14	14·39
1953	August	14·11	14·23	14·12	13·07	12·87	12·97	12·93	12·77	12·65	12·37	12·80	13·83
1953	**Winter**	**14·18**	**14·14**	**14·45**	**13·02**	**12·57**	**12·60**	**13·94**	**12·88**	**12·73**	**13·50**	**13·04**	**14·17**
1952/3	**Comm. Year**	**15·23**	**15·18**	**15·61**	**15·02**	**14·32**	**14·19**	**14·55**	**14·09**	**13·38**	**14·71**	**14·32**	**15·49**
1953	September	14·40	13·93	14·64	14·08	13·88	14·08	14·38	13·89	14·08	13·78	14·02	14·70
1953	October	12·72	11·10	14·33	11·79	10·75	11·86	10·32	11·49	9·83	11·17	11·03	13·61
1953	November	16·04	14·68	15·43	13·87	10·53	12·33	13·52	12·72	11·12	12·58	12·38	14·94
1953	**Spring**	**14·39**	**13·24**	**14·80**	**13·25**	**11·72**	**12·76**	**12·74**	**12·70**	**11·68**	**12·51**	**12·48**	**14·41**
1953	December	14·67	13·90	14·01	14·77	12·98	11·89	13·77	12·14	13·38	10·63	12·79	14·10
1954	January	14·76	14·65	15·30	14·29	12·27	14·07	13·62	13·72	12·17	12·93	13·30	15·26
1954	February	18·35	16·60	17·84	14·62	13·91	14·79	15·79	15·27	14·77	14·98	14·88	17·77
1953/4	**Summer**	**15·93**	**15·05**	**15·72**	**14·56**	**13·05**	**13·58**	**14·39**	**13·71**	**13·44**	**12·85**	**13·65**	**15·71**
1954	March	16·02	17·08	16·86	17·49	14·80	15·45	16·78	13·37	16·70	12·16	15·25	16·61
1954	April	14·81	14·43	15·69	14·37	14·48	12·97	13·29	13·65	13·74	12·79	13·61	15·84
1954	May	16·96	15·31	16·01	13·47	14·64	14·23	13·63	14·61	14·37	14·47	14·20	15·79
1954	**Autumn**	**15·93**	**15·61**	**16·19**	**15·11**	**14·64**	**14·22**	**14·57**	**13·88**	**14·94**	**13·14**	**14·36**	**16·08**
1954	June	15·15	13·47	15·07	13·41	12·34	13·96	14·89	14·43	14·45	14·35	13·98	14·95
1954	July	14·89	14·02	14·53	14·11	12·16	13·12	14·52	12·94	14·42	14·91	13·74	14·39
1954	August	14·28	13·97	14·01	14·02	13·58	13·63	13·85	13·30	13·56	14·07	13·72	14·14
1954	**Winter**	**14·77**	**13·82**	**14·54**	**13·85**	**12·69**	**13·57**	**14·42**	**13·56**	**14·14**	**14·44**	**13·81**	**14·49**
1953/4	**Comm. Year**	**15·25**	**14·43**	**15·31**	**14·19**	**13·03**	**13·53**	**14·03**	**13·46**	**13·55**	**13·23**	**13·57**	**15·17**

TABLE 1 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VARIATIONS OF SURFACE TEMPERATURE FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1954	September.....	14·88	14·95	15·25	15·21	14·80	15·10	15·03	15·08	14·71	14·77	15·03	14·85
1954	October.....	16·22	15·74	16·02	15·59	16·17	16·18	15·99	15·70	15·64	15·33	15·27	14·46
1954	November.....	17·22	16·22	16·93	15·27	17·06	15·41	16·35	15·04	14·13	17·26	15·08	15·42
1954	**Spring.....**	**16·11**	**15·64**	**16·07**	**15·36**	**16·01**	**15·56**	**15·79**	**15·27**	**14·83**	**15·79**	**15·13**	**14·91**
1954	December.....	17·99	17·89	16·67	18·08	18·40	18·60	17·94	15·89	16·24	18·11	17·72	17·99
1955	January.....	15·08	15·31	16·31	15·68	14·74	18·22	15·89	15·77	16·41	15·57	13·03	14·84
1955	February.....	15·62	16·21	16·39	18·80	17·90	19·10	17·34	15·22	15·49	13·18	13·87	13·44
1954/5	**Summer.....**	**16·23**	**16·47**	**16·46**	**17·52**	**17·01**	**18·64**	**17·05**	**15·63**	**16·05**	**15·62**	**14·87**	**15·42**
1955	March.....	15·89	17·47	16·68	15·22	16·57	15·30	16·19	15·97	16·28	15·94	14·18	14·42
1955	April.....	17·81	16·11	17·11	17·61	(17·95)	18·14	17·39	16·83	17·39	17·43	17·59	14·07
1955	May.....	17·03	17·08	16·18	15·61	(16·25)	15·72	16·31	15·36	15·74	15·87	12·78	15·43
1955	**Autumn.....**	**16·91**	**16·89**	**16·66**	**16·15**	**(16·92)**	**16·39**	**16·65**	**16·05**	**16·47**	**16·41**	**14·85**	**14·64**
1955	June.....	15·60	15·17	15·09	14·98	(15·50)	15·40	15·29	13·79	13·76	13·84	14·99	13·20
1955	July.....	14·64	14·81	14·59	(14·77)	(14·50)	14·64	14·66	14·05	14·69	13·79	14·38	14·15
1955	August.....	15·23	14·99	14·28	14·55	(14·85)	14·25	14·69	14·58	14·68	14·33	14·42	14·50
1955	**Winter.....**	**15·16**	**14·99**	**14·65**	**14·77**	**(14·95)**	**14·76**	**14·88**	**14·14**	**14·38**	**13·99**	**14·60**	**13·95**
1954/5	**Comm. Year....**	**16·10**	**16·00**	**15·96**	**15·95**	**(16·22)**	**16·34**	**16·09**	**15·27**	**15·43**	**15·45**	**14·86**	**14·73**
1955	September.....	15·13	15·34	14·99	14·83	(15·10)	14·99	15·06	14·56	15·21	15·13	14·53	14·85
1955	October.....	15·16	14·87	14·91	15·28	(15·35)	15·34	15·15	14·94	15·35	15·51	15·40	14·01
1955	November.....	16·01	16·26	15·45	15·97	(16·11)	16·33	16·02	15·73	15·24	16·04	15·49	15·58
1955	**Spring.....**	**15·43**	**15·49**	**15·12**	**15·36**	**(15·52)**	**15·55**	**15·43**	**15·08**	**15·27**	**15·56**	**15·14**	**14·81**
1955	December.....	16·79	17·63	15·79	16·06	(16·80)	17·17	16·71	14·19	16·13	15·93	14·38	14·86
1956	January.....	18·59	18·73	17·85	19·61	(18·65)	19·56	18·83	15·96	18·33	18·37	16·63	16·99
1956	February.....	17·71	16·43	16·83	15·33	(18·25)	17·59	17·02	14·43	17·01	17·51	15·23	16·71
1955/6	**Summer.....**	**17·70**	**17·60**	**16·82**	**17·00**	**(17·90)**	**18·11**	**17·52**	**14·86**	**17·16**	**17·27**	**15·41**	**16·19**
1956	March.....	19·37	16·97	16·84	17·82	(17·90)	19·52	18·07	15·76	16·97	16·28	15·95	15·43
1956	April.....	17·85	15·54	15·96	15·79	(17·00)	16·49	16·44	13·99	14·98	15·32	15·05	14·75
1956	May.....	17·27	17·29	15·81	15·43	(17·10)	15·24	16·36	13·85	17·04	17·08	15·95	16·39
1956	**Autumn.....**	**18·16**	**16·60**	**16·20**	**16·35**	**(17·33)**	**17·08**	**16·95**	**14·53**	**16·33**	**16·23**	**15·65**	**15·52**
1956	June.....	17·91	17·16	15·88	14·70	(17·25)	16·80	16·62	15·92	16·32	15·22	15·14	15·67
1956	July.....	14·93	15·32	15·22	15·03	(15·40)	15·33	15·21	15·70	14·86	15·43	15·03	15·15
1956	August.....	14·64	14·67	15·21	15·17	(15·10)	15·87	15·11	14·58	15·02	14·55	12·20	14·77
1956	**Winter.....**	**15·83**	**15·72**	**15·44**	**14·97**	**(15·92)**	**16·00**	**15·64**	**15·40**	**15·40**	**15·07**	**14·12**	**15·20**
1955/6	**Comm. Year....**	**16·78**	**16·35**	**15·90**	**15·92**	**(16·67)**	**16·69**	**16·38**	**14·97**	**16·04**	**16·03**	**15·08**	**15·43**

Individual Stations and Sub-Areas, September, 1950—August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1954	September.....	14·63	13·43	14·64	13·71	12·26	13·16	13·12	13·02	12·22	13·54	13·00	14·19
1954	October.....	14·68	14·81	15·13	14·09	11·44	12·08	14·03	13·50	14·52	14·39	13·44	14·79
1954	November.....	12·77	15·32	15·00	13·58	12·52	12·44	10·62	11·64	10·19	14·53	12·22	14·43
1954	**Spring.....**	**14·03**	**14·52**	**14·92**	**13·79**	**12·07**	**12·56**	**12·59**	**12·72**	**12·31**	**14·15**	**12·89**	**14·47**
1954	December.....	14·95	15·17	16·58	15·78	13·08	14·86	14·51	13·06	12·66	15·51	14·21	16·16
1955	January.....	14·37	14·66	14·95	14·31	14·95	17·23	15·38	16·39	13·89	12·65	14·97	15·24
1955	February.....	14·59	14·49	14·33	15·04	15·32	15·18	14·08	14·36	12·40	13·51	14·27	15·21
1954/5	**Summer.....**	**14·64**	**14·77**	**15·29**	**15·04**	**14·45**	**15·76**	**14·66**	**14·60**	**12·98**	**13·89**	**14·48**	**15·53**
1955	March.....	14·80	16·51	15·44	16·28	13·32	12·30	15·20	12·87	13·33	12·24	13·65	15·04
1955	April.....	15·08	14·72	16·16	13·57	13·49	12·52	14·40	12·36	14·23	12·91	13·35	15·57
1955	May.....	14·50	14·58	14·89	14·44	14·07	13·47	13·54	13·01	13·21	13·52	13·61	14·87
1955	**Autumn.....**	**14·79**	**15·27**	**15·50**	**14·76**	**13·63**	**12·76**	**14·38**	**12·75**	**13·59**	**12·89**	**13·54**	**15·16**
1955	June.....	13·56	12·42	13·65	12·70	12·70	12·33	12·44	12·80	12·37	12·20	12·51	13·74
1955	July.....	14·42	14·04	14·22	12·15	11·97	11·74	12·23	12·12	12·02	(14·31)	12·36	13·70
1955	August.....	14·33	13·58	14·35	13·82	12·82	12·34	13·07	13·32	13·32	13·33	13·15	14·03
1955	**Winter.....**	**14·10**	**13·35**	**14·07**	**12·89**	**12·50**	**12·14**	**12·58**	**12·75**	**12·57**	**13·28**	**12·67**	**13·82**
1954/5	**Comm. Year....**	**14·39**	**14·48**	**14·95**	**14·12**	**13·16**	**13·30**	**13·55**	**13·20**	**12·86**	**13·55**	**13·40**	**14·75**
1955	September.....	14·84	14·88	14·86	14·03	13·75	12·75	14·36	13·83	14·28	13·87	13·84	14·56
1955	October.....	14·27	14·75	14·89	14·26	11·38	11·74	14·33	10·12	13·64	15·13	12·94	14·29
1955	November.....	12·84	12·25	14·74	13·81	12·79	12·28	12·51	12·68	10·68	10·73	12·21	14·24
1955	**Spring.....**	**13·98**	**13·96**	**14·83**	**14·03**	**12·64**	**12·26**	**13·73**	**12·21**	**12·87**	**13·24**	**13·00**	**14·36**
1955	December.....	15·13	12·65	14·75	12·18	10·28	12·45	11·36	11·39	10·69	12·96	11·62	14·24
1956	January.....	15·59	15·29	16·74	15·98	18·83	14·39	13·07	15·28	13·56	15·21	15·19	16·82
1956	February.....	15·13	14·37	15·77	14·37	11·80	12·73	13·59	11·21	13·27	13·87	12·89	15·17
1955/6	**Summer.....**	**15·28**	**14·10**	**15·75**	**14·18**	**13·64**	**13·19**	**12·67**	**12·63**	**12·51**	**14·01**	**13·26**	**15·41**
1956	March.....	15·97	14·73	15·87	14·73	13·41	14·36	14·75	13·44	14·03	14·40	14·16	15·93
1956	April.....	13·79	13·48	14·48	13·53	12·43	12·32	11·83	12·69	12·02	13·63	12·63	14·42
1956	May.....	15·48	13·01	15·54	12·78	12·39	11·38	12·01	11·77	13·68	14·77	12·68	14·79
1956	**Autumn.....**	**15·08**	**13·74**	**15·30**	**13·68**	**12·74**	**12·69**	**12·86**	**12·63**	**13·24**	**14·27**	**13·16**	**15·05**
1956	June.....	15·52	13·37	15·31	12·48	11·84	13·02	13·46	11·73	13·61	13·37	12·79	14·82
1956	July.....	14·67	13·81	14·95	13·40	12·92	12·98	13·22	12·82	12·69	14·10	13·16	14·40
1956	August.....	14·41	13·68	14·17	13·66	13·22	12·82	13·02	13·01	12·72	13·24	13·10	14·08
1956	**Winter.....**	**14·87**	**13·62**	**14·81**	**13·18**	**12·66**	**12·94**	**13·23**	**12·52**	**13·01**	**13·57**	**13·02**	**14·43**
1955/6	**Comm. Year....**	**14·80**	**13·86**	**15·17**	**13·77**	**12·92**	**12·77**	**13·12**	**12·50**	**12·91**	**13·77**	**13·11**	**14·81**

TABLE 1 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VARIATIONS OF SURFACE TEMPERATURE FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1956	September.....	15·58	15·76	15·64	15·43	(15·55)	15·45	**15·57**	14·85	15·52	15·45	15·56	15·74
1956	October.....	15·60	15·44	14·32	15·07	(15·60)	15·78	**15·30**	14·12	14·22	15·01	13·69	12·92
1956	November.....	17·83	18·13	16·82	17·53	(17·80)	17·93	**17·67**	15·88	16·28	17·36	16·45	15·66
1956	**Spring**.....	**16·34**	**16·44**	**15·59**	**16·01**	**(16·32)**	**16·39**	**16·18**	**14·95**	**15·34**	**15·94**	**15·23**	**14·77**
1956	December.....	17·59	17·27	16·74	14·11	(17·80)	16·86	**16·73**	16·87	15·91	15·16	13·03	15·88
1957	January.....	18·75	18·66	17·99	18·11	(19·50)	20·61	**18·94**	18·23	15·42	17·33	15·62	15·35
1957	February.....	21·26	21·28	20·00	20·97	(21·40)	21·47	**21·06**	18·53	18·46	20·15	19·61	18·11
1956/7	**Summer**.....	**19·20**	**19·07**	**18·24**	**17·73**	**(19·57)**	**19·65**	**18·91**	**17·88**	**16·60**	**17·55**	**16·09**	**16·45**
1957	March.....	18·14	16·88	17·08	17·09	(18·10)	18·34	**17·61**	17·72	15·59	15·40	16·91	15·57
1957	April.....	17·23	17·85	18·34	19·11	(18·80)	19·32	**18·44**	16·35	17·13	17·21	17·38	16·53
1957	May.....	17·80	17·51	17·32	16·91	(17·80)	17·79	**17·52**	15·96	17·53	17·53	17·06	17·50
1957	**Autumn**.....	**17·72**	**17·41**	**17·58**	**17·70**	**(18·23)**	**18·48**	**17·85**	**16·68**	**16·75**	**16·71**	**17·12**	**16·53**
1957	June.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	July.....	15·80	15·38	14·92	15·48	(16·00)	16·18	**15·63**	14·32	14·66	15·55	15·04	13·85
1957	August.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	**Winter**.....	**15·80**	**15·38**	**14·92**	**15·48**	**(16·00)**	**16·18**	**15·63**	**14·32**	**14·66**	**15·55**	**15·04**	**13·85**
1956/7	**Comm. Year**....	**17·27**	**17·07**	**16·58**	**16·73**	**(17·53)**	**17·67**	**17·14**	**15·96**	**15·84**	**16·44**	**15·87**	**15·40**

INDIVIDUAL STATIONS AND SUB-AREAS, SEPTEMBER, 1950—AUGUST, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1956	September.....	14·76	14·39	**15·18**	14·16	13·42	13·54	13·54	14·51	13·96	15·53	**14·09**	**14·92**
1956	October.....	13·22	13·31	**13·78**	12·86	11·45	11·98	11·65	11·14	10·63	12·26	**11·71**	**13·51**
1956	November.....	13·82	14·18	**15·64**	14·00	14·85	12·96	12·15	13·22	12·80	15·02	**13·57**	**15·53**
1956	**Spring**.....	**13·93**	**13·96**	**14·88**	**13·67**	**13·24**	**12·83**	**12·45**	**12·96**	**12·46**	**14·27**	**13·13**	**14·65**
1956	December.....	15·07	15·10	**15·29**	15·96	16·62	15·38	15·56	14·72	15·00	13·13	**15·20**	**15·69**
1957	January.....	15·73	13·26	**15·85**	13·96	12·22	12·66	13·38	12·08	10·94	13·00	**12·61**	**15·64**
1957	February.....	17·38	17·02	**18·47**	17·12	18·03	15·92	16·22	15·97	17·85	16·35	**16·78**	**18·65**
1956/7	**Summer**.....	**16·06**	**15·13**	**16·53**	**15·68**	**15·62**	**14·65**	**15·05**	**14·26**	**14·60**	**14·16**	**14·86**	**16·66**
1957	March.....	14·02	14·28	**15·64**	13·13	12·65	11·00	12·85	11·62	11·04	13·31	**12·23**	**15·04**
1957	April.....	15·47	15·27	**16·48**	15·33	14·95	14·92	14·66	14·95	15·23	13·67	**14·82**	**16·49**
1957	May.....	17·25	14·86	**16·81**	14·36	13·74	13·80	14·14	14·27	14·47	17·25	**14·58**	**16·24**
1957	**Autumn**.....	**15·58**	**14·80**	**16·31**	**14·27**	**13·78**	**13·24**	**13·88**	**13·61**	**13·58**	**14·74**	**13·87**	**15·92**
1957	June.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	July.....	14·42	13·41	**14·46**	12·56	11·91	11·89	12·24	12·30	12·19	12·73	**12·26**	**14·04**
1957	August.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	**Winter**.....	**14·42**	**13·41**	**14·46**	**12·56**	**11·91**	**11·89**	**12·24**	**12·30**	**12·19**	**12·73**	**12·26**	**14·04**
1956/7	**Comm Year**....	**15·00**	**14·33**	**15·55**	**14·05**	**13·64**	**13·15**	**13·41**	**13·28**	**13·21**	**13·97**	**13·53**	**15·32**

TABLE 2.

MONTHLY, SEASONAL AND ANNUAL VALUES OF 20 METRES TEMPERATURE FOR

Year.	Month/Season	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1950	September.....	15·48	15·42	15·09	15·24	15·25	15·22	**15·28**	14·70	14·64	15·19	14·76	14·69
1950	October.....	17·01	16·37	16·37	16·90	18·11	18·08	**17·14**	15·97	15·91	16·45	15·79	15·74
1950	November.....	16·24	16·35	16·84	16·01	17·13	17·27	**16·64**	14·53	13·93	15·65	14·61	13·19
1950	**Spring.....**	**16·24**	**16·05**	**16·10**	**16·05**	**16·83**	**16·86**	**16·35**	**15·07**	**14·83**	**15·76**	**15·05**	**14·54**
1950	December.....	17·25	17·05	17·17	17·15	17·81	17·95	**17·40**	15·11	15·95	17·29	15·03	14·66
1951	January.....	17·18	15·62	14·94	13·59	17·21	15·25	**15·63**	14·51	15·57	14·10	13·25	14·49
1951	February.....	15·19	17·19	17·51	14·18	17·04	14·88	**16·00**	17·39	14·40	15·19	12·64	14·51
1950/1	**Summer.....**	**16·54**	**16·62**	**16·54**	**14·97**	**17·35**	**16·03**	**16·34**	**15·67**	**15·31**	**15·53**	**13·64**	**14·55**
1951	March.....	17·29	17·96	15·91	13·91	18·03	16·77	**16·65**	13·81	13·42	14·36	14·07	13·65
1951	April.....	19·41	19·15	16·49	14·43	19·54	19·34	**18·06**	14·79	15·30	14·82	13·41	14·73
1951	May.....	19·54	19·02	18·19	18·57	20·13	20·00	**19·24**	17·78	17·95	17·76	16·07	16·27
1951	**Autumn.....**	**18·75**	**18·71**	**16·86**	**15·64**	**19·23**	**18·70**	**17·98**	**15·46**	**15·56**	**15·65**	**14·52**	**14·88**
1951	June.....	18·15	18·23	18·22	15·91	17·93	17·45	**17·65**	15·60	15·80	15·55	14·05	15·60
1951	August.....	15·10	14·91	14·04	15·05	15·29	15·32	**14·95**	14·05	14·15	14·89	14·50	14·62
1951	**Winter.....**	**16·63**	**16·57**	**16·13**	**15·48**	**16·61**	**16·39**	**16·30**	**14·83**	**14·97**	**15·22**	**14·27**	**15·11**
1950/1	**Comm. Year....**	**17·08**	**17·02**	**16·43**	**15·54**	**17·59**	**17·05**	**16·79**	**15·29**	**15·18**	**15·57**	**14·38**	**14·74**
1951	September.....	14·69	14·86	14·55	14·95	14·80	15·00	**14·81**	13·82	13·71	15·10	14·85	14·21
1951	October.....	14·90	15·03	14·68	14·68	15·00	14·85	**14·86**	14·50	15·03	14·99	14·90	13·11
1951	November.....	15·51	16·15	14·77	15·80	15·68	16·30	**15·70**	14·62	14·76	15·85	15·60	13·85
1951	**Spring.....**	**15·03**	**15·35**	**14·67**	**15·14**	**15·16**	**15·38**	**15·12**	**14·31**	**14·50**	**15·31**	**15·12**	**13·72**
1951	December.....	16·85	16·02	15·90	16·00	17·15	17·10	**16·50**	15·02	16·88	16·30	15·02	15·45
1952	January.....	21·12	20·77	20·50	20·91	16·37	21·23	**20·15**	15·20	18·45	16·21	16·15	12·91
1952	February.....	18·09	17·20	17·90	16·60	18·50	18·78	**17·85**	15·98	16·18	17·68	17·10	14·73
1951/2	**Summer.....**	**18·69**	**18·00**	**18·10**	**17·84**	**17·34**	**19·04**	**18·17**	**15·40**	**17·17**	**16·73**	**16·09**	**14·36**
1952	March.....	15·61	16·50	14·64	18·80	18·16	17·70	**16·90**	16·22	13·33	15·10	14·50	13·81
1952	April.....	16·51	18·09	18·40	19·58	19·53	19·62	**18·62**	13·11	16·18	15·35	14·50	12·90
1952	May.....	16·50	16·71	16·30	16·49	16·96	15·47	**16·41**	14·49	14·70	13·91	15·07	14·44
1952	**Autumn.....**	**16·21**	**17·10**	**16·45**	**18·29**	**18·22**	**17·60**	**17·31**	**14·61**	**14·74**	**14·79**	**14·69**	**13·72**
1952	June.....	17·90	17·09	16·10	17·80	18·11	18·24	**17·54**	16·42	14·42	17·88	15·00	17·80
1952	July.....	16·71	16·51	16·29	15·11	16·30	15·68	**16·10**	14·90	14·76	14·31	14·10	14·70
1952	August.....	14·20	14·65	14·50	14·69	14·68	15·32	**14·67**	13·82	14·56	13·90	14·89	14·20
1952	**Winter.....**	**16·27**	**16·08**	**15·63**	**15·87**	**16·36**	**16·41**	**16·10**	**15·05**	**14·58**	**15·36**	**14·66**	**15·57**
1951/2	**Comm. Year....**	**16·55**	**16·63**	**16·21**	**16·78**	**16·77**	**17·11**	**16·68**	**14·84**	**15·25**	**15·55**	**15·14**	**14·34**

Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1950	September	14·61	14·52	14·73	13·27	12·08	13·12	13·31	13·19	12·96	12·64	12·94	14·27
1950	October	15·59	14·93	15·77	14·92	10·50	12·31	15·43	11·19	13·93	14·39	13·24	15·29
1950	November	15·46	13·20	14·37	12·09	9·53	11·22	12·06	9·28	11·07	12·05	11·04	13·89
1950	**Spring**	**15·22**	**14·22**	**14·96**	**13·43**	**10·70**	**12·22**	**13·60**	**11·22**	**12·65**	**13·03**	**12·41**	**14·48**
1950	December	14·91	14·88	15·40	13·24	11·63	10·58	14·58	8·89	10·90	13·25	11·87	14·76
1951	January	13·44	13·83	14·17	13·30	10·39	11·93	13·37	9·32	12·50	11·68	11·78	13·77
1951	February	14·44	13·48	14·58	13·97	9·72	9·89	13·21	8·90	10·91	12·09	11·24	13·84
1950/1	**Summer**	**14·26**	**14·06**	**14·72**	**13·50**	**10·58**	**10·80**	**13·72**	**9·04**	**11·44**	**12·34**	**11·63**	**14·12**
1951	March	12·94	12·92	13·60	12·16	9·53	11·57	11·87	8·84	11·02	10·70	10·81	13·54
1951	April	13·03	12·07	14·02	12·23	12·09	10·48	11·87	9·17	11·15	11·37	11·19	14·24
1951	May	16·45	13·25	16·50	13·79	15·39	15·43	15·25	13·89	11·69	16·51	14·56	16·65
1951	**Autumn**	**14·14**	**12·75**	**14·71**	**12·73**	**12·34**	**12·49**	**13·00**	**10·63**	**11·29**	**12·86**	**12·19**	**14·81**
1951	June	15·11	13·93	15·09	13·67	13·68	13·49	13·53	13·89	13·47	14·59	13·76	15·39
1951	August	14·37	13·12	14·24	13·07	12·14	11·92	12·71	12·29	12·07	14·02	12·60	13·88
1951	**Winter**	**14·74**	**13·53**	**14·67**	**13·37**	**12·91**	**12·71**	**13·12**	**13·09**	**12·77**	**14·31**	**13·18**	**14·67**
1950/1	**Comm. Year**	**14·58**	**13·65**	**14·77**	**13·25**	**11·52**	**11·99**	**13·38**	**10·80**	**11·97**	**13·03**	**12·28**	**14·50**
1951	September	13·17	13·27	14·02	12·72	11·51	13·20	13·42	12·61	12·79	13·00	12·75	13·81
1951	October	14·23	14·70	14·49	13·10	12·62	12·98	13·20	11·67	12·40	13·30	12·75	13·99
1951	November	14·47	13·92	14·72	11·27	9·19	10·69	11·69	9·49	11·20	11·59	10·73	13·62
1951	**Spring**	**13·96**	**13·96**	**14·41**	**12·36**	**11·11**	**12·29**	**12·77**	**11·26**	**12·13**	**12·63**	**12·08**	**13·81**
1951	December	16·20	13·42	15·47	12·65	9·44	10·41	11·79	9·05	11·59	16·10	11·58	14·42
1952	January	16·78	14·84	15·79	11·92	10·41	12·38	15·17	9·06	13·90	11·59	12·06	15·79
1952	February	13·84	12·99	15·50	11·70	10·89	9·74	12·39	9·74	11·67	12·84	11·28	14·73
1951/2	**Summer**	**15·61**	**13·75**	**15·59**	**12·09**	**10·25**	**10·84**	**13·12**	**9·28**	**12·39**	**13·51**	**11·64**	**14·98**
1952	March	13·85	16·11	14·70	11·55	9·74	10·81	13·60	10·09	11·23	11·72	11·25	14·15
1952	April	12·79	13·73	14·08	14·15	10·02	9·62	12·51	9·74	11·50	11·57	11·30	14·47
1952	May	14·50	12·90	14·29	11·66	10·99	12·69	12·51	10·94	13·85	12·48	12·16	14·18
1952	**Autumn**	**13·71**	**14·25**	**14·36**	**12·45**	**10·25**	**11·04**	**12·87**	**10·26**	**12·19**	**11·92**	**11·57**	**14·27**
1952	June	15·20	14·27	15·86	12·32	12·03	12·41	12·43	11·43	12·90	13·96	12·50	15·19
1952	July	14·67	12·95	14·34	11·40	10·19	10·83	12·20	11·74	11·19	13·60	11·59	13·91
1952	August	13·79	11·99	13·88	12·64	12·67	12·09	12·20	12·67	12·19	13·55	12·57	13·66
1952	**Winter**	**14·55**	**13·07**	**14·69**	**12·12**	**11·63**	**11·78**	**12·28**	**11·95**	**12·09**	**13·70**	**12·22**	**14·25**
1951/2	**Comm. Year**	**14·46**	**13·76**	**14·76**	**12·26**	**10·81**	**11·49**	**12·76**	**10·69**	**12·20**	**12·94**	**11·88**	**14·33**

TABLE 2 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VALUES OF 20 METRES TEMPERATURE FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1952	September.....	15·76	15·32	15·61	15·40	15·20	15·61	**15·48**	15·10	15·16	15·30	15·42	15·24
1952	October.....	15·74	15·50	15·81	15·80	15·74	15·85	**15·74**	15·00	15·30	15·15	15·09	15·20
1952	November.....	18·01	17·68	17·82	15·13	17·50	16·40	**17·09**	16·48	16·40	16·91	15·88	16·85
1952	**Spring.....**	**16·50**	**16·17**	**16·41**	**15·44**	**16·15**	**15·95**	**16·10**	**15·53**	**15·62**	**15·79**	**15·46**	**15·76**
1952	December.....	18·68	15·40	15·72	14·63	18·40	17·37	**16·70**	15·70	14·42	13·50	12·38	15·42
1953	January.....	18·60	18·38	18·12	18·06	14·94	20·27	**18·06**	16·80	15·42	17·33	16·51	17·20
1953	February.....	16·20	16·50	18·10	16·61	16·28	16·63	**16·72**	13·49	14·62	14·31	14·41	12·36
1952/3	**Summer.....**	**17·83**	**16·76**	**17·31**	**16·43**	**16·54**	**18·09**	**17·16**	**15·33**	**14·82**	**15·05**	**14·43**	**14·99**
1953	March.....	16·65	18·08	17·79	14·85	15·50	16·20	**16·51**	16·38	16·01	16·30	12·47	16·37
1953	April.....	15·64	16·33	17·35	14·80	15·22	14·80	**15·69**	14·20	15·46	15·49	13·32	14·76
1953	May.....	17·40	17·01	15·86	17·70	17·40	17·45	**17·14**	14·97	16·00	14·45	16·83	15·88
1953	**Autumn.....**	**16·56**	**17·14**	**17·00**	**15·78**	**16·04**	**16·15**	**16·45**	**15·18**	**15·82**	**15·41**	**14·21**	**15·67**
1953	June.....	14·85	15·00	15·38	15·13	15·92	15·86	**15·36**	15·01	14·51	14·01	14·21	14·31
1953	July.....	15·50	15·32	15·06	15·27	15·39	15·25	**15·30**	13·57	15·22	15·32	15·95	14·17
1953	August.....	14·51	14·35	14·29	14·81	14·61	14·54	**14·52**	13·80	13·95	14·87	13·91	13·57
1953	**Winter.....**	**14·95**	**14·89**	**14·91**	**15·07**	**15·31**	**15·22**	**15·06**	**14·13**	**14·56**	**14·73**	**14·69**	**14·02**
1952/3	**Comm. Year....**	**16·46**	**16·24**	**16·41**	**15·68**	**16·00**	**16·35**	**16·19**	**15·04**	**15·21**	**15·25**	**14·70**	**15·11**
1953	September.....	15·67	16·09	14·07	14·22	15·43	15·18	**15·11**	14·14	13·97	14·47	14·17	15·24
1953	October.....	15·61	15·67	13·37	15·97	15·57	16·26	**15·41**	13·17	16·11	16·20	15·77	13·49
1953	November.....	15·47	17·20	16·58	17·18	17·62	17·79	**16·97**	14·27	15·28	15·14	14·87	13·81
1953	**Spring.....**	**15·58**	**16·32**	**14·67**	**15·79**	**16·21**	**16·41**	**15·83**	**13·86**	**15·12**	**15·27**	**14·94**	**14·18**
1953	December.....	15·55	14·17	16·95	13·39	16·71	15·07	**15·31**	15·07	15·12	12·37	12·08	12·20
1954	January.....	16·90	16·69	15·51	14·55	18·10	16·25	**16·33**	15·07	15·67	14·67	13·52	14·30
1954	February.....	18·05	16·60	15·63	20·02	20·42	20·84	**18·59**	14·78	13·28	17·47	11·72	15·13
1953/4	**Summer.....**	**16·83**	**15·82**	**16·03**	**15·99**	**18·41**	**17·39**	**16·74**	**14·97**	**14·69**	**14·84**	**12·44**	**13·88**
1954	March.....	15·65	17·61	16·70	14·57	16·80	16·38	**16·29**	16·93	14·87	14·07	13·61	13·47
1954	April.....	19·03	17·61	14·73	18·64	19·08	19·14	**18·04**	15·22	14·13	18·30	13·12	13·72
1954	May.....	17·73	17·73	14·53	17·46	17·69	17·20	**17·05**	14·71	16·30	14·71	15·35	16·46
1954	**Autumn.....**	**17·47**	**17·65**	**15·32**	**16·89**	**17·86**	**17·57**	**17·13**	**15·62**	**15·10**	**15·69**	**14·03**	**14·55**
1954	June.....	15·83	15·13	15·66	16·17	16·70	15·98	**15·91**	14·35	14·85	16·26	15·46	15·82
1954	July.....	15·05	14·77	14·89	14·97	15·03	15·13	**14·97**	14·52	14·47	14·61	14·75	14·39
1954	August.....	14·45	14·95	14·30	14·38	14·48	14·51	**14·51**	13·78	13·90	14·22	14·18	14·04
1954	**Winter.....**	**15·11**	**14·95**	**14·95**	**15·17**	**15·40**	**15·21**	**15·13**	**14·22**	**14·41**	**15·03**	**14·80**	**14·75**
1953/4	**Comm. Year....**	**16·25**	**16·19**	**15·24**	**15·96**	**16·97**	**16·64**	**16·21**	**14·67**	**14·83**	**15·21**	**14·05**	**14·34**

Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1952	September.....	14·78	14·22	15·03	14·62	13·90	13·56	14·56	12·84	14·20	14·82	14·07	14·83
1952	October.....	15·14	15·02	15·13	13·43	9·60	10·83	14·02	10·65	12·83	14·75	12·30	14·32
1952	November.....	15·61	13·70	15·98	15·59	13·30	10·97	16·27	10·89	12·25	15·18	13·49	15·44
1952	**Spring.....**	**15·18**	**14·31**	**15·38**	**14·55**	**12·27**	**11·79**	**14·95**	**11·46**	**13·09**	**14·92**	**13·29**	**14·87**
1952	December.....	14·28	12·25	13·99	14·21	11·26	11·51	13·75	9·29	11·73	11·67	11·92	14·08
1953	January.....	16·18	14·99	16·35	10·31	9·69	12·07	12·45	9·12	9·88	14·29	11·12	15·03
1953	February.....	13·50	12·68	13·62	11·72	9·69	9·78	11·00	9·99	10·71	12·18	10·72	13·54
1952/3	**Summer.....**	**14·65**	**13·31**	**14·65**	**12·08**	**10·21**	**11·12**	**12·40**	**9·47**	**10·77**	**12·71**	**11·25**	**14·21**
1953	March.....	17·24	13·76	15·50	12·91	10·18	10·79	14·25	9·39	13·60	11·39	11·79	14·51
1953	April.....	14·22	13·82	14·47	12·84	12·92	13·94	13·52	13·03	14·41	11·77	13·20	14·39
1953	May.....	14·75	14·40	15·33	13·88	13·85	11·30	13·75	12·14	10·92	14·88	12·96	15·04
1953	**Autumn.....**	**15·40**	**13·99**	**15·10**	**13·21**	**12·32**	**12·01**	**13·84**	**11·52**	**12·98**	**12·68**	**12·65**	**14·65**
1953	June.....	14·43	13·88	14·34	12·91	11·56	12·10	14·19	11·30	11·00	14·21	12·47	13·99
1953	July.....	13·48	13·81	14·50	12·13	11·40	11·55	14·11	12·71	13·37	13·73	12·71	14·12
1953	August.....	14·09	14·11	14·04	12·48	12·52	12·93	12·91	12·62	12·61	12·27	12·62	13·69
1953	**Winter.....**	**14·00**	**13·93**	**14·29**	**12·51**	**11·83**	**12·19**	**13·74**	**12·21**	**12·33**	**13·40**	**12·60**	**13·93**
1952/3	**Comm. Year....**	**14·81**	**13·89**	**14·86**	**13·09**	**11·66**	**11·78**	**13·73**	**11·16**	**12·29**	**13·43**	**12·45**	**14·41**
1953	September.....	13·32	11·99	13·90	12·77	12·40	12·67	13·77	12·88	12·42	13·57	12·93	13·92
1953	October.....	12·57	10·98	14·04	11·08	9·77	10·70	10·18	10·18	9·60	10·96	10·35	13·16
1953	November.....	15·42	12·90	14·53	11·65	8·83	11·27	12·11	8·49	10·31	12·45	10·73	13·93
1953	**Spring.....**	**13·77**	**11·96**	**14·16**	**11·83**	**10·33**	**11·55**	**12·02**	**10·52**	**10·78**	**12·33**	**11·34**	**13·67**
1953	December.....	13·87	12·47	13·31	12·31	9·58	9·48	12·77	8·79	12·49	10·31	10·82	13·02
1954	January.....	14·35	13·88	14·49	10·45	9·09	8·90	13·09	8·79	12·10	10·91	10·48	13·64
1954	February.....	14·72	13·47	14·37	13·47	9·48	9·56	11·08	9·48	10·59	10·88	10·65	14·33
1953/4	**Summer.....**	**14·31**	**13·27**	**14·06**	**12·08**	**9·38**	**9·31**	**12·31**	**9·02**	**11·73**	**10·70**	**10·65**	**13·67**
1954	March.....	13·15	14·41	14·36	11·39	9·60	9·29	11·06	9·12	10·36	10·76	10·23	13·49
1954	April.....	14·50	11·71	14·39	11·48	13·91	11·87	13·01	12·28	9·54	11·87	11·99	14·64
1954	May.....	16·72	15·11	15·62	12·20	14·43	14·11	13·33	14·11	14·09	14·97	13·89	15·45
1954	**Autumn.....**	**14·79**	**13·74**	**14·79**	**11·69**	**12·65**	**11·76**	**12·47**	**11·84**	**11·33**	**12·53**	**12·04**	**14·53**
1954	June.....	15·09	13·44	15·04	13·37	12·08	13·90	14·21	12·76	12·60	14·35	13·32	14 70
1954	July.....	14·91	14·03	14·53	13·83	12·00	12·69	14·57	13·03	14·37	14·91	13·63	14·35
1954	August.....	14·28	13·97	14·05	14·02	13·46	13·46	13·60	12·66	13·49	13·81	13·50	14·00
1954	**Winter.....**	**14·76**	**13·81**	**14·54**	**13·74**	**12·51**	**13·35**	**14·13**	**12·82**	**13·49**	**14·36**	**13·48**	**14·35**
1953/4	**Comm. Year....**	**14·41**	**13·20**	**14·39**	**12·33**	**11·21**	**11·49**	**12·73**	**11·05**	**11·83**	**12·48**	**11·87**	**14·05**

TABLE 2 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VALUES OF 20 METRES TEMPERATURE FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1954	September.....	14·88	14·53	15·23	14·95	14·80	14·83	**14·87**	15·08	14·69	14·75	14·95	14·82
1954	October.....	16·22	15·71	15·91	15·55	16·16	16·18	**15·95**	15·18	15·29	15·33	15·23	14·35
1954	November.....	17·22	16·12	16·93	14·78	16·83	15·38	**16·21**	14·87	13·55	17·23	15·02	15·37
1954	**Spring.....**	**16·11**	**15·45**	**16·02**	**15·09**	**15·93**	**15·46**	**15·68**	**15·04**	**14·51**	**15·77**	**15·07**	**14·85**
1954	December.....	17·86	16·15	16·67	17·99	17·59	18·47	**17·45**	14·41	15·59	17·79	17·70	16·29
1955	January.....	13·91	14·38	15·51	13·92	14·43	16·58	**14·79**	13·37	14·78	15·15	12·45	13·19
1955	February.....	15·58	15·87	14·87	14·30	17·08	18·90	**16·10**	15·20	15·45	13·18	12·31	13·13
1954/5	**Summer.....**	**15·78**	**15·47**	**15·68**	**15·40**	**16·37**	**17·98**	**16·11**	**14·33**	**15·27**	**15·37**	**14·15**	**14·20**
1955	March.....	14·36	17·44	14·28	14·91	16·43	14·97	**15·40**	15·21	14·47	15·27	14·13	13·85
1955	April.....	17·80	16·07	17·11	17·42	(17·75)	18·10	**17·37**	16·82	17·15	17·48	17·57	11·90
1955	May.....	15·32	15·09	15·90	15·44	(15·70)	15·65	**15·52**	13·62	14·10	15·58	12·54	13·35
1955	**Autumn.....**	**15·83**	**16·20**	**15·76**	**15·92**	**(16·63)**	**16·24**	**16·10**	**15·22**	**15·24**	**16·11**	**14·75**	**13·03**
1955	June.....	15·59	15·13	14·82	14·74	(15·45)	15·39	**15·19**	13·71	13·42	13·78	14·36	12·70
1955	July.....	14·67	14·56	14·59	14·77	(14·55)	14·68	**14·64**	13·99	14·58	13·66	14·29	13·93
1955	August.....	15·23	14·92	14·45	14·31	(14·60)	14·17	**14·61**	14·55	14·56	14·17	13·92	14·32
1955	**Winter.....**	**15·16**	**14·87**	**14·62**	**14·61**	**(14·87)**	**14·75**	**14·81**	**14·08**	**14·19**	**13·87**	**14·19**	**13·65**
1954/5	**Comm. Year....**	**15·72**	**15·50**	**15·52**	**15·26**	**(15·95)**	**16·11**	**15·68**	**14·67**	**14·80**	**15·28**	**14·54**	**13·93**
1955	September.....	15·13	15·23	14·99	14·83	(15·08)	14·97	**15·04**	14·53	14·96	15·00	14·53	14·67
1955	October.....	15·16	14·85	14·91	15·28	(15·25)	15·34	**15·13**	14·91	15·09	14·98	15·42	13·26
1955	November.....	15·93	15·93	15·45	15·97	(15·90)	16·24	**15·90**	15·14	14·13	15·54	14·93	14·62
1955	**Spring.....**	**15·41**	**15·34**	**15·12**	**15·36**	**(15·41)**	**15·52**	**15·36**	**14·86**	**14·73**	**15·17**	**14·96**	**14·18**
1955	December.....	16·73	16·79	15·59	15·91	(16·55)	17·12	**16·45**	13·22	15·91	15·33	14·25	14·51
1956	January.....	18·59	18·53	17·80	17·82	(18·25)	17·56	**18·09**	15·82	18·10	18·01	13·65	14·48
1956	February.....	16·89	16·38	16·77	13·67	(16·20)	14·63	**15·76**	14·43	16·67	15·70	13·55	14·58
1955/6	**Summer.....**	**17·40**	**17·23**	**16·72**	**15·80**	**(17·00)**	**16·44**	**16·77**	**14·49**	**16·89**	**16·35**	**13·82**	**14·52**
1956	March.....	19·03	16·93	16·86	16·03	(17·90)	19·02	**17·63**	15·73	16·73	14·53	14·83	14·17
1956	April.....	17·73	15·35	15·23	14·68	(17·25)	16·41	**16·11**	13·89	14·84	15·22	14·39	14·75
1956	May.....	17·28	17·23	15·81	15·44	(17·10)	15·14	**16·33**	13·85	16·93	17·08	15·84	16·39
1956	**Autumn.....**	**18·01**	**16·50**	**15·97**	**15·38**	**(17·42)**	**16·86**	**16·69**	**14·49**	**16·17**	**15·61**	**15·02**	**15·10**
1956	June.....	17·86	17·16	15·86	14·62	(16·00)	14·89	**16·07**	15·87	15·84	15·04	15·04	15·62
1956	July.....	14·77	15·21	15·02	15·05	(15·20)	15·17	**15·07**	15·02	14·73	15·03	14·99	14·85
1956	August.....	14·66	14·67	15·23	15·02	(15·10)	15·78	**15·08**	14·56	14·94	14·51	11·78	14·76
1956	**Winter.....**	**15·76**	**15·68**	**15·37**	**14·90**	**(15·43)**	**15·28**	**15·40**	**15·15**	**15·17**	**14·86**	**13·94**	**15·08**
1955/6	**Comm. Year....**	**16·65**	**16·19**	**15·79**	**15·36**	**(16·31)**	**16·02**	**16·05**	**14·75**	**15·74**	**15·50**	**14·43**	**14·72**

Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1954	September.....	14·63	13·43	14·62	13·22	11·36	12·51	13·12	11·00	12·12	13·54	12·41	13·92
1954	October.....	13·31	13·10	14·54	13·30	9·66	10·90	13·58	8·96	12·42	14·39	11·89	14·04
1954	November.....	12·32	13·98	14·62	11·71	9·02	9·96	10·40	8·66	9·86	12·74	10·34	13·60
1954	**Spring**.....	**13·42**	**13·50**	**14·59**	**12·74**	**10·01**	**11·12**	**12·37**	**9·54**	**11·47**	**13·56**	**11·54**	**13·85**
1954	December.....	13·12	12·56	15·35	10·57	9·18	9·98	11·37	9·06	11·46	14·19	10·83	14·40
1955	January.....	13·16	12·71	13·54	14·18	10·08	10·46	11·97	9·01	11·10	11·07	11·12	13·07
1955	February.....	13·42	13·51	13·74	11·27	10·13	9·63	13·15	9·12	12·10	11·42	10·97	13·48
1954/5	**Summer**.....	**13·23**	**12·93**	**14·21**	**12·01**	**9·80**	**10·02**	**12·16**	**9·06**	**11·55**	**12·23**	**10·98**	**13·65**
1955	March.....	14·64	13·44	14·43	10·91	9·46	9·42	12·43	9·30	11·52	12·00	10·72	13·42
1955	April.....	12·96	13·70	15·37	11·29	12·70	10·42	12·36	11·13	11·40	11·96	11·61	14·65
1955	May.....	14·27	14·04	13·93	11·27	10·62	10·27	11·95	10·25	10·78	11·65	10·97	13 37
1955	**Autumn**.....	**13·96**	**13·73**	**14·58**	**11·16**	**10·93**	**10·04**	**12·25**	**10·23**	**11·23**	**11·87**	**11·10**	**13·82**
1955	June.....	13·52	12·30	13·40	12·30	10·92	11·18	11·90	11·41	12·03	10·27	11·43	13·25
1955	July.....	14·35	13·83	14·09	11·76	11·49	11·74	11·73	11·80	11·59	14·33	12·06	13·55
1955	August.....	14·23	13·47	14·17	13·45	11·92	12·07	13·17	12·32	12·55	13·21	12·67	13·78
1955	**Winter**.....	**14·03**	**13·20**	**13·89**	**12·50**	**11·44**	**11·66**	**12·27**	**11·84**	**12·06**	**12·60**	**12·05**	**13·52**
1954/5	**Comm. Year**....	**13·66**	**13·34**	**14·32**	**12·10**	**10·55**	**10·71**	**12·26**	**10·17**	**11·58**	**12·56**	**11·42**	**13·71**
1955	September.....	14·75	14·68	14·73	13·48	11·13	12·26	14·36	11·67	14·22	13·87	13·00	14·22
1955	October.....	13·99	14·32	14·57	13·86	10·38	11·62	14·29	9·67	12·58	15·11	12·50	14·01
1955	November.....	12·01	10·17	13·79	11·85	8·85	10·66	11·92	8·31	9·41	10·71	10·24	13·18
1955	**Spring**.....	**13·58**	**13·06**	**14·36**	**13·06**	**10·12**	**11·51**	**13·52**	**9·88**	**12·07**	**13·23**	**11·91**	**13·80**
1955	December.....	15·06	11·73	14·29	10·78	8·60	9·33	11·33	8·33	9·67	11·96	10·00	13·44
1956	January.....	15·18	14·38	15·66	13·32	9·73	8·87	12·75	8·55	11·39	10·53	10·73	14·67
1956	February.....	14·99	14·27	14·88	12·68	10·56	12·40	12·77	9·05	12·88	12·20	11·79	14·06
1955/6	**Summer**.....	**15·08**	**13·46**	**14·94**	**12·26**	**9·63**	**10·20**	**12·28**	**8·64**	**11·31**	**11·56**	**10·84**	**14·06**
1956	March.....	14·18	12·69	14·69	11·59	9·70	10·43	13·33	9·22	9·63	12·33	10·89	14·24
1956	April.....	12·89	13·13	14·16	11·01	9·34	9·77	10·97	9·47	9·63	13·31	10·50	13·46
1956	May.....	15·37	12·51	15·42	11·50	11·34	9·58	11·98	10·09	13·44	14·48	11·77	14·42
1956	**Autumn**.....	**14·15**	**12·78**	**14·76**	**11·37**	**10·13**	**9·93**	**12·09**	**9·59**	**10·90**	**13·37**	**11·05**	**14·04**
1956	June.....	15·52	11·43	14·91	12·24	11·01	11·97	13·42	11·68	11·37	13·32	12·14	14·29
1956	July.....	14·62	13·52	14·68	13·06	12·33	12·81	12·56	12·43	12·35	14·03	12·79	14·14
1956	August.....	14·33	13·27	14·02	12·89	12·87	12·72	12·56	12·68	12·72	13·02	12·78	13·90
1956	**Winter**.....	**14·82**	**12·74**	**14·54**	**12·73**	**12·07**	**12·50**	**12·85**	**12·26**	**12·15**	**13·46**	**12·57**	**14·11**
1955/6	**Comm. Year**....	**14·41**	**13·01**	**14·65**	**12·35**	**10·49**	**11·03**	**12·69**	**10·09**	**11·61**	**12·91**	**11·60**	**14·00**

TABLE 2 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VALUES OF 20 METRES TEMPERATURE FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1956	September.....	15·58	15·68	15·60	15·42	(15·46)	15·42	**15·53**	14·83	15·32	15·24	15·50	15·64
1956	October.....	15·60	15·40	14·07	15·04	(15·60)	15·72	**15·24**	14·04	13·98	14·92	13·69	12·05
1956	November.....	17·83	17·90	16·82	17·48	(17·65)	17·83	**17·69**	15·82	15·52	17·19	16·36	15·18
1956	**Spring.....**	**16·34**	**16·33**	**15·50**	**15·98**	**(16·24)**	**16·32**	**16·12**	**14·90**	**14·94**	**15·78**	**15·18**	**14·29**
1956	December.....	16·36	16·62	15·75	13·54	(17·80)	15·61	**15·95**	14·54	13·92	12·70	12·23	12·62
1957	January.....	17·73	18·03	15·64	17·66	(17·75)	20·49	**17·88**	14·10	14·32	15·38	14·08	13·50
1957	February.....	21·25	21·03	16·90	20·94	(21·20)	21·41	**20·45**	18·47	16·75	19·99	19·03	17·48
1956/7	**Summer.....**	**18·45**	**18·56**	**16·10**	**17·38**	**(18·92)**	**19·17**	**18·09**	**15·70**	**15·00**	**16·02**	**15·11**	**14·53**
1957	March.....	18·12	16·23	16·67	14·62	(18·60)	18·20	**17·07**	17·67	15·25	15·18	14·37	13·26
1957	April.....	14·88	16·78	16·33	19·00	(17·90)	19·19	**17·35**	14·64	15·40	16·70	13·47	15·27
1957	May.....	17·79	17·49	17·33	16·00	(17·65)	17·67	**17·32**	15·82	17·51	17·49	16·94	17·42
1957	**Autumn.....**	**16·93**	**16·83**	**16·78**	**16·54**	**(18·05)**	**18·35**	**17·25**	**16·04**	**16·05**	**16·46**	**14·93**	**15·32**
1957	June.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	July.....	15·80	15·38	14·90	15·48	(15·80)	15·91	**15·55**	14·32	14·62	15·52	14·95	13·85
1957	August.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	**Winter.....**	**15·80**	**15·38**	**14·90**	**15·48**	**(15·80)**	**15·91**	**15·55**	**14·32**	**14·62**	**15·52**	**14·95**	**13·85**
1956/7	**Comm. Year....**	**16·88**	**16·77**	**15·82**	**16·35**	**(17·25)**	**17·44**	**16·75**	**15·24**	**15·15**	**15·95**	**15·04**	**14·50**

Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1956	September.....	14·71	14·23	15·07	12·16	13·05	13·55	12·15	12·92	12·95	15·53	13·19	14·55
1956	October.....	13·15	12·85	13·53	12·53	9·84	11·73	11·12	9·03	10·50	12·00	10·96	13·14
1956	November.....	13·53	13·92	15·36	12·18	10·77	9·88	12·13	9·01	10·99	14·82	11·40	14·64
1956	**Spring.....**	**13·80**	**13·67**	**14·65**	**12·29**	**11·22**	**11·72**	**11·80**	**10·32**	**11·48**	**14·12**	**11·85**	**14·11**
1956	December.....	12·09	11·92	12·86	11·53	13·42	10·41	10·52	10·53	11·93	11·80	11·45	13·29
1957	January.....	15·42	12·83	14·23	11·54	10·85	11·47	10·83	9·03	10·16	11·59	12·58	14·12
1957	February.....	15·75	15·32	17·54	12·43	9·82	10·51	14·76	9·65	12·14	12·84	11·74	16·38
1956/7	**Summer.....**	**14·42**	**13·36**	**14·88**	**11·83**	**11·36**	**10·80**	**12·04**	**9·74**	**11·41**	**12·08**	**11·32**	**14·60**
1957	March.....	13·62	12·45	14·54	10·32	9·29	10·59	10·94	9·20	11·06	11·54	10·42	13·86
1957	April.....	14·63	13·67	14·83	10·79	9·61	10·02	12·16	9·54	11·04	11·55	10·67	14·13
1957	May.....	17·20	14·54	16·70	14·10	13·17	12·42	13·79	13·69	12·02	17·21	13·77	15·86
1957	**Autumn.....**	**15·15**	**13·55**	**15·36**	**11·74**	**10·69**	**11·01**	**12·30**	**10·81**	**11·37**	**13·43**	**11·62**	**14·62**
1957	June.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	July.....	14·40	13·34	14·43	12·37	11·91	11·89	12·19	12·29	11·95	12·57	12·17	13·97
1957	August.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	**Winter.....**	**14·40**	**13·34**	**14·43**	**12·37**	**11·91**	**11·89**	**12·19**	**12·29**	**11·95**	**12·57**	**12·17**	**13·97**
1956/7	**Comm. Year....**	**14·44**	**13·48**	**14·83**	**12·06**	**11·29**	**11·35**	**12·08**	**10·79**	**11·55**	**13·05**	**11·74**	**14·32**

TABLE 3.

MONTHLY, SEASONAL AND ANNUAL VARIATION OF THE 0–50 METRES AVERAGE INTEGRAL

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1950	September.....	15·38	15·27	15·06	15·12	15·37	15·33	**15·25**	14·49	14·49	15·09	14·65	14·54
1950	October.....	16·85	16·17	16·22	16·55	17·63	17·58	**16·83**	15·75	15·58	16·11	15·41	15·46
1950	November.....	16·10	16·43	16·63	16·05	17·01	17·16	**16·56**	14·41	13·83	15·51	14·26	12·93
1950	**Spring.....**	**16·11**	**15·96**	**15·97**	**15·91**	**16·67**	**16·69**	**16·22**	**14·88**	**14·63**	**15·57**	**14·77**	**14·31**
1950	December.....	16·65	16·33	16·67	16·62	16·77	17·61	**16·77**	14·88	15·01	16·32	14·47	14·09
1951	January.....	16·72	15·32	15·00	13·55	17·22	15·68	**15·58**	14·08	14·97	14·15	12·82	14·34
1951	February.....	14·75	16·72	16·91	13·67	16·39	14·53	**15·49**	17·14	14·28	14·50	12·53	13·73
1950/1	**Summer.....**	**16·04**	**16·12**	**16·19**	**14·61**	**16·79**	**15·94**	**15·95**	**15·37**	**14·75**	**14·99**	**13·27**	**14·05**
1951	March.....	17·15	17·93	15·23	13·50	17·79	16·09	**16·28**	13·49	13·11	14·31	13·61	13·43
1951	April.....	19·32	19·14	16·29	13·89	19·42	19·22	**17·88**	14·26	14·58	14·64	13·04	14·59
1951	May.....	19·40	18·98	17·68	17·88	19·88	19·85	**18·95**	17·10	17·09	17·69	15·12	14·71
1951	**Autumn.....**	**18·62**	**18·68**	**16·40**	**15·09**	**19·03**	**18·39**	**17·70**	**14·95**	**14·93**	**15·55**	**13·92**	**14·24**
1951	June.....	17·70	17·70	18·19	15·34	17·89	17·41	**17·37**	15·23	15·03	15·04	13·62	15·11
1951	August.....	15·11	14·89	14·04	15·02	15·28	15·30	**14·94**	13·99	14·17	14·87	14·51	14·60
1951	**Winter.....**	**16·41**	**16·29**	**16·11**	**15·18**	**16·59**	**16·35**	**16·15**	**14·61**	**14·60**	**14·95**	**14·07**	**14·85**
1950/1	**Comm. Year....**	**16·83**	**16·81**	**16·17**	**15·20**	**17·33**	**16·89**	**16·54**	**14·98**	**14·74**	**15·29**	**14·00**	**14·32**
1951	September.....	14·70	14·86	14·57	14·96	14·82	15·00	**14·82**	13·67	13·63	15·07	14·91	14·17
1951	October.....	14·92	15·10	14·59	14·74	14·99	14·82	**14·86**	14·22	15·00	14·86	14·86	12·78
1951	November.....	15·49	16·02	14·81	15·78	15·67	16·17	**15·66**	14·61	14·67	15·77	15·54	13·93
1951	**Spring.....**	**15·04**	**15·33**	**14·66**	**15·16**	**15·16**	**15·33**	**15·11**	**14·17**	**14·43**	**15·23**	**15·10**	**13·63**
1951	December.....	16·85	16·03	15·67	15·74	17·15	17·10	**16·42**	15·01	16·82	16·27	14·36	15·35
1952	January.....	20·79	20·26	20·25	19·11	16·31	20·43	**19·53**	14·27	16·86	15·65	15·91	13·60
1952	February.....	17·20	16·11	16·86	16·13	17·19	17·60	**16·85**	16·18	15·86	16·79	16·08	14·44
951/2	**Summer.....**	**18·28**	**17·47**	**17·59**	**16·99**	**16·88**	**18·38**	**17·60**	**15·15**	**16·51**	**16·24**	**15·45**	**14·46**
1952	March.....	15·28	16·53	15·02	16·81	17·47	16·75	**16·31**	14·87	13·95	13·76	13·79	13·17
1952	April.....	15·62	16·20	17·04	18·87	19·53	19·35	**17·77**	13·28	14·86	14·18	14·30	12·49
1952	May.....	16·19	15·85	16·26	16·19	16·86	15·20	**16·09**	14·18	13·82	13·87	14·94	13·50
1952	**Autumn.....**	**15·70**	**16·19**	**16·11**	**17·29**	**17·95**	**17·10**	**16·72**	**14·11**	**14·21**	**13·94**	**14·34**	**13·05**
1952	June.....	17·26	16·93	16·08	16·96	17·68	18·13	**17·17**	15·27	13·77	17·03	14·12	16·77
1952	July.....	16·50	16·48	16·21	14·88	16·18	15·50	**15·96**	14·54	14·70	13·93	13·73	14·61
1952	August.....	14·24	14·58	14·48	14·66	14·41	15·29	**14·61**	13·73	14·23	13·94	14·69	14·09
1952	**Winter.....**	**16·00**	**16·00**	**15·59**	**15·50**	**16·09**	**16·31**	**15·91**	**14·51**	**14·23**	**14·97**	**14·18**	**15·16**
1951/2	**Comm. Year....**	**16·25**	**16·25**	**15·99**	**16·23**	**16·52**	**16·78**	**16·34**	**14·49**	**14·85**	**15·09**	**14·77**	**14·07**

Temperature for Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine. Area
1950	September	14·58	14·29	14·59	12·47	12·16	12·11	13·08	—	12·31	12·29	12·40	14·11
1950	October	15·43	14·03	15·40	13·71	11·28	11·99	14·37	—	12·67	13·48	12·92	15·07
1950	November	14·57	13·15	14·09	11·45	10·09	11·11	12·25	—	10·54	11·37	11·13	13·94
1950	**Spring**	**14·86**	**13·82**	**14·69**	**12·54**	**11·18**	**11·74**	**13·23**	**—**	**11·84**	**12·38**	**12·15**	**14·37**
1950	December	14·33	13·90	14·71	12·37	10·95	10·77	13·66	—	10·61	12·65	11·83	14·45
1951	January	13·27	13·25	13·84	12·72	11·45	11·17	12·58	—	11·55	11·15	11·77	13·74
1951	February	14·23	12·90	14·19	12·61	10·13	10·52	12·13	—	10·63	11·51	11·25	13·67
1950/1	**Summer**	**13·94**	**13·35**	**14·25**	**12·57**	**10·84**	**10·82**	**12·79**	**—**	**10·93**	**11·77**	**11·62**	**13·95**
1951	March	12·45	12·45	13·26	11·39	10·25	11·19	11·59	—	10·79	10·53	10·96	13·49
1951	April	13·27	12·14	13·79	11·75	11·26	10·69	11·56	—	10·94	11·15	11·23	14·27
1951	May	16·45	12·73	15·84	12·41	13·05	12·46	15·19	—	11·74	15·99	13·47	16·07
1951	**Autumn**	**14·06**	**12·44**	**14·30**	**11·85**	**11·52**	**11·45**	**12·78**	**—**	**11·16**	**12·56**	**11·88**	**14·61**
1951	June	14·52	12·98	14·50	13·07	13·64	13·48	12·89	—	12·66	13·41	13·19	14·99
1951	August	14·18	13·08	14·20	12·22	11·83	11·29	11·80	—	11·30	13·43	11·98	13·73
1951	**Winter**	**14·35**	**13·03**	**14·35**	**12·65**	**12·73**	**12·39**	**12·35**	**—**	**11·98**	**13·42**	**12·59**	**14·36**
1950/1	**Comm. Year**	**14·30**	**13·17**	**14·40**	**12·38**	**11·46**	**11·53**	**12·83**	**—**	**11·43**	**12·45**	**12·01**	**14·32**
1951	September	13·19	13·13	13·97	12·28	11·40	12·71	13·29	—	11·93	12·75	12·39	13·74
1951	October	13·92	14·71	14·33	12·49	11·97	12·06	12·21	—	10·95	12·58	12·04	13·77
1951	November	14·12	13·82	14·64	10·76	9·53	10·37	11·52	—	11·16	10·97	10·72	13·72
1951	**Spring**	**13·74**	**13·89**	**14·31**	**11·84**	**10·97**	**11·71**	**12·34**	**—**	**11·35**	**12·10**	**11·72**	**13·74**
1951	December	16·01	12·98	15·26	11·50	9·80	9·96	11·03	—	10·77	14·63	11·28	14·37
1952	January	15·66	13·95	15·13	11·78	10·13	11·13	14·30	—	12·86	12·42	12·10	15·56
1952	February	13·59	13·20	15·16	12·06	11·86	11·08	12·30	—	11·47	12·20	11·83	14·64
1951/2	**Summer**	**15·09**	**13·38**	**15·18**	**11·78**	**10·60**	**10·72**	**12·54**	**—**	**11·70**	**13·08**	**11·74**	**14·86**
1952	March	13·63	14·26	13·92	12·01	9·92	11·37	13·16	—	11·70	11·89	11·67	13·97
1952	April	12·70	12·73	13·51	11·95	10·59	11·00	11·91	—	11·06	12·16	11·45	14·20
1952	May	13·75	12·10	13·74	11·47	10·81	11·62	12·44	—	12·63	12·38	11·89	13·90
1952	**Autumn**	**13·36**	**13·03**	**13·72**	**11·81**	**10·44**	**11·33**	**12·50**	**—**	**11·80**	**12·14**	**11·67**	**14·02**
1952	June	14·95	13·57	15·07	11·84	11·37	11·63	11·95	—	12·13	13·89	12·13	14·81
1952	July	14·41	12·59	14·07	10·99	10·52	10·55	11·83	—	11·27	13·13	11·38	13·82
1952	August	13·51	11·86	13·72	11·92	12·53	12·18	12·33	—	12·04	13·47	12·41	13·59
1952	**Winter**	**14·29**	**12·67**	**14·29**	**11·58**	**11·47**	**11·45**	**12·05**	**—**	**11·81**	**13·50**	**11·98**	**14·07**
1951/2	**Comm. Year**	**14·12**	**13·24**	**14·30**	**11·75**	**10·87**	**11·31**	**12·35**	**—**	**11·66**	**12·71**	**11·77**	**14·21**

TABLE 3 (*continued*).
MONTHLY, SEASONAL AND ANNUAL VARIATION OF THE 0–50 METRES AVERAGE INTEGRAL

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1952	September.....	15·66	15·30	15·58	15·33	15·13	15·46	15·41	15·08	15·05	15·00	15·45	14·65
1952	October.....	15·62	15·41	15·74	15·67	15·73	15·71	15·65	14·97	15·34	15·29	15·09	15·10
1952	November.....	17·44	17·58	17·41	15·75	16·66	15·87	16·79	15·24	15·22	16·08	15·88	16·26
1952	**Spring.....**	**16·24**	**16·10**	**16·24**	**15·58**	**15·84**	**15·68**	**15·95**	**15·10**	**15·20**	**15·46**	**15·47**	**15·34**
1952	December.....	16·97	14·75	14·75	14·61	16·99	16·42	15·75	14·16	13·82	13·28	12·34	14·43
1953	January.....	17·45	16·82	17·37	16·55	15·54	18·52	17·04	15·41	15·11	15·66	15·73	15·37
1953	February.....	16·25	15·68	18·00	16·11	16·05	15·97	16·34	13·38	14·51	13·96	13·91	12·54
1952/3	**Summer.....**	**16·89**	**15·75**	**16·71**	**15·76**	**16·19**	**16·97**	**16·38**	**14·32**	**14·48**	**14·30**	**13·99**	**14·11**
1953	March.....	16·43	16·77	16·64	15·04	15·42	16·00	16·05	15·32	15·06	15·65	12·73	15·25
1953	April.....	15·64	15·07	16·74	14·24	15·14	14·36	15·20	14·02	15·36	15·43	12·86	14·14
1953	May.....	17·01	16·86	15·46	17·37	17·28	17·45	16·90	14·64	15·82	13·91	16·06	15·04
1953	**Autumn.....**	**16·36**	**16·23**	**16·28**	**15·55**	**15·95**	**15·94**	**16·05**	**14·66**	**15·41**	**15·00**	**13·88**	**14·81**
1953	June.....	14·86	14·99	15·38	15·08	15·92	15·83	15·34	15·01	14·62	13·73	13·49	13·24
1953	July.....	15·51	15·37	15·06	15·29	15·38	15·28	15·31	13·32	15·21	15·31	15·86	13·76
1953	August.....	14·51	14·35	14·28	14·75	14·65	14·58	14·52	13·65	13·64	14·77	13·88	13·31
1953	**Winter.....**	**14·96**	**14·90**	**14·91**	**15·04**	**15·32**	**15·23**	**15·06**	**13·99**	**14·49**	**14·60**	**14·41**	**13·44**
1952/3	**Comm. Year....**	**16·11**	**15·75**	**16·03**	**15·48**	**15·82**	**15·95**	**15·86**	**14·52**	**14·80**	**14·84**	**14·44**	**14·42**
1953	September.....	15·64	16·09	14·15	14·22	15·45	15·03	15·10	14·12	14·04	14·40	14·16	14·89
1953	October.....	15·60	15·49	13·45	16·04	15·65	16·31	15·42	13·20	16·10	16·03	15·45	13·26
1953	November.....	15·43	16·50	16·49	16·73	17·47	17·77	16·73	14·09	14·66	14·66	14·08	13·43
1953	**Spring.....**	**15·56**	**16·03**	**14·70**	**15·66**	**16·19**	**16·37**	**15·75**	**13·80**	**14·93**	**15·03**	**14·56**	**13·88**
1953	December.....	15·55	14·21	16·70	13·37	16·67	15·07	15·26	14·48	14·55	12·35	12·13	12·05
1954	January.....	17·17	16·53	15·22	14·25	17·96	16·50	16·27	14·49	15·44	14·20	12·95	13·19
1954	February.....	17·08	17·31	15·98	18·44	18·36	19·47	17·77	14·54	13·20	16·47	12·10	14·85
1953/4	**Summer.....**	**16·60**	**16·02**	**15·97**	**15·35**	**17·66**	**17·01**	**16·43**	**14·50**	**14·40**	**14·34**	**12·39**	**13·36**
1954	March.....	15·09	16·67	16·13	14·22	16·57	16·54	15·87	15·56	14·91	13·31	13·19	13·69
1954	April.....	18·92	16·63	14·93	17·04	18·91	19·01	17·57	14·80	13·65	16·23	12·93	13·64
1954	May.....	17·62	17·51	14·34	16·62	17·47	15·55	16·52	14·61	15·55	13·57	14·47	14·94
1954	**Autumn.....**	**17·21**	**16·94**	**15·13**	**15·96**	**17·65**	**17·03**	**16·65**	**14·99**	**14·70**	**14·37**	**13·53**	**14·09**
1954	June.....	15·83	15·03	15·43	16·04	16·66	15·98	15·83	14·12	14·85	16·25	15·37	15·26
1954	July.....	15·03	14·77	14·87	14·94	15·03	15·13	14·96	14·44	14·46	14·60	14·77	14·39
1954	August.....	14·45	14·94	14·25	14·42	14·53	14·56	14·53	13·96	13·77	14·22	14·16	14·04
1954	**Winter.....**	**15·10**	**14·91**	**14·85**	**15·13**	**15·41**	**15·22**	**15·10**	**14·17**	**14·36**	**15·02**	**14·77**	**14·56**
1953/4	**Comm. Year....**	**16·12**	**15·97**	**15·16**	**15·53**	**16·73**	**16·41**	**15·99**	**14·37**	**14·60**	**14·69**	**13·81**	**13·97**

Temperature for Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1952	September	14·36	13·39	14·71	14·41	13·15	13·07	13·79	—	13·62	14·59	13·77	14·63
1952	October	15·15	15·03	15·14	12·94	10·21	11·15	13·30	—	11·91	14·56	12·35	14·42
1952	November	15·29	13·60	15·37	13·52	12·86	11·95	14·67	—	11·45	14·08	13·09	15·09
1952	**Spring**	**14·93**	**14·01**	**15·07**	**13·62**	**12·07**	**12·06**	**13·92**	**—**	**12·33**	**14·41**	**13·07**	**14·71**
1952	December	13·46	12·05	13·36	12·14	11·33	11·00	12·83	—	11·04	11·38	11·62	13·57
1953	January	15·12	14·18	15·23	11·09	10·04	10·92	12·47	—	10·14	13·72	11·40	14·59
1953	February	12·60	12·59	13·36	11·08	10·33	10·09	10·93	—	10·21	11·87	10·75	13·48
1952/3	**Summer**	**13·73**	**12·94**	**13·98**	**11·44**	**10·57**	**10·67**	**12·08**	**—**	**10·46**	**12·32**	**11·26**	**13·88**
1953	March	14·87	13·32	14·60	12·90	11·49	11·19	12·97	—	12·31	11·16	12·00	14·24
1953	April	13·68	13·40	14·13	12·56	12·28	13·49	12·66	—	14·17	11·67	12·81	14·05
1953	May	13·97	13·34	14·68	12·50	12·50	11·32	12·52	—	11·04	13·63	12·25	14·62
1953	**Autumn**	**14·17**	**13·35**	**14·47**	**12·65**	**12·09**	**12·00**	**12·72**	**—**	**12·51**	**12·15**	**12·35**	**14·30**
1953	June	13·84	13·47	13·91	11·71	11·33	11·48	13·13	—	10·79	12·66	11·85	13·71
1953	July	12·98	13·61	14·29	11·67	11·27	11·17	13·45	—	13·15	13·26	12·33	13·99
1953	August	14·08	14·03	13·91	12·26	12·53	12·71	12·43	—	12·48	12·17	12·43	13·63
1953	**Winter**	**13·63**	**13·70**	**14·04**	**11·88**	**11·71**	**11·79**	**13·00**	**—**	**12·14**	**12·70**	**12·20**	**13·78**
1952/3	**Comm. Year**	**14·12**	**13·50**	**14·39**	**12·40**	**11·61**	**11·63**	**12·93**	**—**	**11·86**	**12·89**	**12·22**	**14·17**
1953	September	13·31	12·05	13·85	11·71	11·89	11·85	13·45	—	12·58	13·10	12·43	13·80
1953	October	12·36	10·91	13·90	10·38	9·48	10·07	10·19	—	9·52	10·98	10·10	13·18
1953	November	14·83	12·88	14·10	10·61	9·14	10·38	11·84	—	10·16	11·93	10·68	13·85
1953	**Spring**	**13·50**	**11·95**	**13·95**	**10·90**	**10·17**	**10·77**	**11·83**	**—**	**10·75**	**12·00**	**10·07**	**13·61**
1953	December	13·32	12·40	13·04	11·83	9·87	9·45	11·78	—	12·05	10·35	10·89	13·06
1954	January	13·55	12·94	13·82	11·05	9·53	9·74	11·49	—	11·04	10·96	10·64	13·59
1954	February	14·17	13·07	14·06	12·13	9·87	10·59	11·14	—	10·37	11·17	10·88	14·23
1953/4	**Summer**	**13·68**	**12·80**	**13·64**	**11·67**	**9·76**	**9·93**	**11·47**	**—**	**11·15**	**10·83**	**10·80**	**13·63**
1954	March	13·11	13·77	13·93	11·89	10·21	10·17	12·03	—	11·31	10·72	11·05	13·64
1954	April	13·82	11·53	13·80	11·32	12·53	11·10	12·17	—	10·29	11·60	11·50	14·27
1954	May	15·59	13·23	14·57	11·30	14·07	14·05	12·50	—	14·06	14·31	13·38	14·81
1954	**Autumn**	**14·17**	**12·84**	**14·10**	**11·50**	**12·27**	**11·77**	**12·23**	**—**	**11·89**	**12·21**	**11·98**	**14·23**
1954	June	14·95	12·98	14·83	13·18	11·46	13·35	13·65	—	12·33	14·16	13·02	14·57
1954	July	14·91	14·03	14·51	13·24	11·67	12·69	14·44	—	14·23	14·89	13·53	14·34
1954	August	14·23	13·97	14·05	13·45	13·11	12·38	12·97	—	13·49	13·72	13·19	13·93
1954	**Winter**	**14·70**	**13·66**	**14·46**	**13·29**	**12·08**	**12·81**	**13·69**	**—**	**13·35**	**14·26**	**13·25**	**14·28**
1953/4	**Comm. Year**	**14·01**	**12·81**	**14·04**	**11·84**	**11·07**	**11·32**	**12·30**	**—**	**11·79**	**12·32**	**11·77**	**13·94**

TABLE 3 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VARIATION OF THE 0–50 METRES AVERAGE INTEGRAL

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1954	September.....	14·86	14·65	15·10	14·93	14·77	14·76	14·83	14·89	14·67	14·75	14·94	14·81
1954	October.....	16·17	15·67	15·80	15·54	16·08	16·16	15·90	15·09	15·37	15·27	15·23	14·13
1954	November.....	17·17	15·71	16·90	14·44	15·67	14·57	15·74	14·86	13·51	16·71	13·88	14·65
1954	**Spring.....**	**16·07**	**15·34**	**15·93**	**14·97**	**15·51**	**15·16**	**15·50**	**14·95**	**14·52**	**15·58**	**14·68**	**14·53**
1954	December.....	17·33	16·01	15·95	16·99	17·40	17·06	16·79	13·97	14·71	17·24	16·50	15·51
1955	January.....	13·96	14·33	14·83	14·26	14·41	16·33	14·69	13·55	14·18	14·71	12·05	12·94
1955	February.....	14·91	15·10	14·60	14·84	16·01	17·37	15·47	14·44	14·64	13·09	11·85	12·45
1954/5	**Summer.....**	**15·40**	**15·15**	**15·13**	**15·36**	**15·94**	**16·92**	**15·65**	**13·99**	**14·51**	**15·01**	**13·47**	**13·63**
1955	March.....	14·44	15·63	14·31	14·24	15·59	14·13	14·72	13·71	14·15	14·02	13·61	12·87
1955	April.....	17·38	14·84	16·42	16·70	(17·15)	16·80	16·55	15·88	15·64	16·37	16·21	11·90
1955	May.....	15·07	15·07	15·18	14·73	(14·90)	14·86	14·97	13·42	13·96	14·40	11·86	13·45
1955	**Autumn.....**	**15·63**	**15·18**	**15·30**	**15·22**	**(15·83)**	**15·26**	**15·41**	**14·34**	**14·58**	**14·93**	**13·89**	**12·74**
1955	June.....	15·54	15·01	14·71	14·35	(15·00)	15·23	14·97	13·51	13·19	13·46	13·93	12·04
1955	July.....	14·68	14·57	14·59	14·77	(14·65)	14·67	14·65	13·93	14·58	13·46	14·03	13·26
1955	August.....	15·16	14·85	14·43	14·32	(14·70)	14·16	14·60	14·44	14·49	14·15	13·95	14·23
1955	**Winter.....**	**15·13**	**14·81**	**14·58**	**14·48**	**(14·78)**	**14·69**	**14·74**	**13·96**	**14·09**	**13·69**	**13·97**	**13·18**
1954/5	**Comm. Year....**	**15·56**	**15·12**	**15·23**	**15·01**	**(15·53)**	**15·51**	**15·33**	**14·31**	**14·42**	**14·80**	**14·00**	**13·52**
1955	September.....	15·13	15·23	14·95	14·82	(15·05)	14·97	15·03	14·47	14·98	14·95	14·52	14·70
1955	October.....	15·16	14·69	14·80	15·23	(15·20)	15·31	15·07	14·35	15·11	14·93	15·33	13·06
1955	November.....	15·96	15·97	15·38	15·97	(15·95)	16·23	15·91	14·58	14·05	15·59	14·84	14·53
1955	**Spring.....**	**15·42**	**15·30**	**15·04**	**15·34**	**(15·40)**	**15·50**	**15·33**	**14·47**	**14·71**	**15·16**	**14·90**	**14·10**
1955	December.....	16·70	16·73	15·49	15·73	(16·50)	16·87	16·34	12·99	15·27	15·33	13·49	14·17
1956	January.....	17·55	17·48	17·08	17·76	(17·45)	17·41	17·45	14·59	17·42	17·16	13·77	14·44
1956	February.....	16·16	15·78	15·67	13·33	(15·50)	14·00	15·07	13·69	16·00	15·13	13·74	14·41
1955/6	**Summer.....**	**16·80**	**16·66**	**16·08**	**15·61**	**(16·48)**	**16·09**	**16·29**	**13·76**	**16·23**	**15·87**	**13·67**	**14·34**
1956	March.....	18·11	16·49	15·76	15·47	(16·35)	17·55	16·62	14·57	15·53	14·25	13·89	13·32
1956	April.....	17·22	14·14	14·69	14·14	(16·50)	14·88	15·26	13·09	14·67	14·91	13·33	13·97
1956	May.....	17·28	16·63	15·41	14·01	(16·50)	14·49	15·72	13·54	16·69	16·41	14·29	15·37
1956	**Autumn.....**	**17·54**	**15·75**	**15·29**	**14·54**	**(16·45)**	**15·64**	**15·87**	**13·73**	**15·63**	**15·19**	**13·84**	**14·22**
1956	June.....	17·27	17·07	15·85	14·39	(16·10)	15·29	15·99	15·71	15·49	14·60	14·19	15·44
1956	July.....	14·54	15·05	15·01	14·89	(15·10)	15·10	14·95	14·90	14·38	15·00	14·79	14·47
1956	August.....	14·57	14·58	15·17	14·72	(15·05)	15·79	14·98	14·43	14·93	14·41	11·61	14·56
1956	**Winter.....**	**15·46**	**15·57**	**15·34**	**14·67**	**(15·42)**	**15·39**	**15·31**	**15·01**	**14·93**	**14·67**	**13·53**	**14·82**
1955/6	**Comm. Year....**	**16·30**	**15·82**	**15·44**	**15·04**	**(15·94)**	**15·66**	**15·70**	**14·24**	**15·38**	**15·22**	**13·98**	**14·37**

Temperature for Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1954	September.....	14·49	12·80	14·48	12·22	10·49	11·27	12·79	—	11·62	13·41	11·97	13·89
1954	October.....	12·68	12·65	14·35	12·07	9·67	10·14	12·65	—	11·53	13·58	11·61	13·97
1954	November.....	12·15	12·97	14·10	10·74	9·79	10·15	10·15	—	9·59	12·00	10·40	13·45
1954	**Spring**.....	13·11	12·81	14·31	11·68	9·98	10·52	11·86	—	10·91	13·00	11·33	13·76
1954	December.....	13·54	12·19	14·81	11·22	9·76	10·67	11·17	—	10·89	12·82	11·09	14·26
1955	January.....	13·16	12·68	13·32	12·54	10·37	11·12	12·15	—	10·81	10·73	11·29	13·11
1955	February.....	12·96	12·19	13·09	11·39	11·19	10·77	11·79	—	10·63	10·74	11·09	13·21
1954/5	**Summer**.....	13·22	12·35	13·74	11·72	10·44	10·85	11·70	—	10·78	11·43	11·15	13·53
1955	March.....	13·86	12·77	13·57	11·57	9·90	10·02	11·92	—	10·81	11·09	10·89	13·09
1955	April.....	12·55	12·43	14·43	11·12	11·79	10·55	12·21	—	11·64	11·35	11·44	14·15
1955	May.....	13·55	12·78	13·35	11·47	10·95	10·70	11·41	—	10·60	11·34	11·08	13·14
1955	**Autumn**.....	13·32	12·66	13·78	11·39	10·88	10·42	11·85	—	11·02	11·26	11·14	13·46
1955	June.....	12·57	12·24	12·99	12·04	10·81	10·62	11·16	—	10·95	10·50	11·09	12·99
1955	July.....	14·10	13·29	13·81	10·96	11·44	11·29	10·87	—	11·39	14·08	11·67	13·40
1955	August.....	13·97	13·16	14·06	12·72	12·06	11·99	12·63	—	12·50	13·09	12·50	13·74
1955	**Winter**.....	13·55	12·90	13·62	11·91	11·44	11·30	11·55	—	11·61	12·56	11·73	13·38
1954/5	**Comm. Year**....	13·30	12·68	13·86	11·67	10·69	10·77	11·74	—	11·08	12·06	11·34	13·53
1955	September.....	14·77	14·55	14·71	12·22	10·97	10·91	13·56	—	13·17	13·61	12·41	14·08
1955	October.....	13·40	13·87	14·29	13·05	9·74	10·70	13·63	—	12·05	14·30	12·25	13·89
1955	November.....	12·08	10·17	13·69	10·97	9·09	10·08	11·25	—	9·63	10·66	10·28	13·31
1955	**Spring**.....	13·42	12·86	14·23	12·08	9·93	10·56	12·81	—	11·62	12·86	11·64	13·76
1955	December.....	14·63	11·43	13·90	10·15	8·91	9·54	10·93	—	9·79	11·69	10·17	13·49
1956	January.....	14·18	12·97	14·93	12·05	11·31	9·96	11·76	—	11·17	11·19	11·24	14·56
1956	February.....	14·06	12·44	14·21	11·76	10·40	10·79	12·13	—	11·38	11·71	11·36	13·58
1955/6	**Summer**.....	14·29	12·28	14·35	11·32	10·21	10·10	11·61	—	10·78	11·53	10·92	13·88
1956	March.....	14·31	12·56	14·06	11·68	10·46	10·94	12·06	—	10·23	12·54	11·32	14·00
1956	April.....	12·57	12·34	13·55	10·62	9·91	10·15	10·71	—	9·63	12·20	10·54	13·14
1956	May.....	14·93	12·08	14·76	11·28	10·58	9·83	10·99	—	12·56	12·77	11·33	13·98
1956	**Autumn**.....	13·94	12·33	14·12	11·19	10·32	10·31	11·25	—	10·81	12·50	11·06	13·71
1956	June.....	15·11	11·49	14·58	11·87	10·99	11·62	13·41	—	11·34	12·49	11·93	14·20
1956	July.....	14·20	13·29	14·43	12·87	12·31	12·74	12·45	—	12·17	13·96	12·75	14·06
1956	August.....	14·18	12·63	13·82	11·80	12·58	12·16	11·80	—	11·64	12·95	12·15	13·66
1956	**Winter**.....	14·50	12·47	14·28	12·18	11·96	12·17	12·55	—	11·72	13·13	12·29	13·97
1955/6	**Comm. Year**....	14·04	12·49	14·24	11·69	10·60	10·79	12·06	—	11·23	12·51	11·48	13·83

TABLE 3 (*continued*).
MONTHLY, SEASONAL AND ANNUAL VARIATION OF THE 0–50 METRES AVERAGE INTEGRAL

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1956	September.....	15·58	15·69	15·56	15·42	(15·45)	15·43	**15·52**	14·80	15·36	15·19	15·50	15·60
1956	October.....	15·60	15·38	13·99	15·04	(15·60)	15·67	**15·21**	14·03	13·95	14·95	13·61	11·83
1956	November.....	17·40	17·29	16·22	17·22	(17·40)	17·33	**17·14**	14·85	14·63	16·88	16·26	14·44
1956	**Spring.....**	**16·19**	**16·12**	**15·26**	**15·89**	**(16·15)**	**16·14**	**15·96**	**14·56**	**14·65**	**15·67**	**15·12**	**13·96**
1956	December.....	16·41	15·53	15·01	13·10	(16·50)	15·09	**15·27**	14·68	13·84	12·90	11·96	12·90
1957	January.....	16·90	16·07	15·61	16·50	(17·00)	18·94	**16·84**	14·44	13·37	14·93	13·87	13·02
1957	February.....	20·53	19·94	16·79	19·15	(20·50)	20·57	**19·58**	15·58	15·88	17·57	17·03	15·75
1956/7	**Summer.....**	**17·95**	**17·18**	**15·80**	**16·25**	**(18·00)**	**18·20**	**17·23**	**14·90**	**14·36**	**15·13**	**14·29**	**13·89**
1957	March.....	18·12	16·10	15·48	14·68	(18·00)	18·09	**16·75**	16·85	14·48	14·49	14·05	12·97
1957	April.....	14·38	16·35	16·42	14·59	(17·00)	18·35	**16·18**	13·93	14·90	15·31	13·84	14·49
1957	May.....	17·65	17·21	17·15	15·12	(17·70)	17·65	**17·08**	14·41	16·84	17·44	14·83	16·01
1957	**Autumn.....**	**16·72**	**16·55**	**16·35**	**14·80**	**(17·57)**	**18·03**	**16·67**	**15·06**	**15·41**	**15·75**	**14·24**	**14·49**
1957	June.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	July.....	15·76	15·20	14·91	15·40	15·75	15·54	**15·43**	14·31	14·44	15·47	14·01	13·63
1957	August.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	**Winter.....**	**15·76**	**15·20**	**14·91**	**15·40**	**15·75**	**15·54**	**15·43**	**14·31**	**14·44**	**15·47**	**14·01**	**13·63**
1956/7	**Comm. Year....**	**16·65**	**16·26**	**15·58**	**15·59**	**16·87**	**16·98**	**16·32**	**14·71**	**14·71**	**15·51**	**14·41**	**13·99**

TEMPERATURE FOR INDIVIDUAL STATIONS AND SUB-AREAS, SEPTEMBER, 1950–AUGUST, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1956	September.....	14·72	13·27	14·92	11·94	12·15	12·30	11·61	—	12·02	15·53	12·59	14·37
1956	October.....	12·76	12·20	13·33	11·13	9·69	10·61	10·80	—	10·40	11·24	10·65	13·08
1956	November.....	12·56	12·77	14·63	11·36	11·35	10·13	11·05	—	10·86	12·72	11·25	14·35
1956	**Spring**.....	**13·35**	**12·75**	**14·29**	**11·48**	**11·06**	**11·01**	**11·15**	—	**11·09**	**13·16**	**11·49**	**13·94**
1956	December.....	12·35	12·08	12·96	11·72	12·60	10·75	11·03	—	11·22	11·19	11·42	13·20
1957	January.....	13·70	12·16	13·64	11·09	10·57	10·64	11·03	—	9·76	10·77	10·64	13·70
1957	February.....	14·63	13·79	15·75	12·90	11·26	11·45	13·48	—	12·02	12·43	12·26	15·86
1956/7	**Summer**.....	**13·56**	**12·68**	**14·12**	**11·90**	**11·48**	**10·95**	**11·85**	—	**11·00**	**11·46**	**11·44**	**14·25**
1957	March.....	13·32	11·87	14·00	10·66	10·05	9·94	11·23	—	10·91	11·20	10·66	13·82
1957	April.....	13·64	12·64	14·11	11·61	10·49	10·92	12·03	—	11·37	11·31	11·29	13·87
1957	May.....	15·48	13·34	15·48	12·43	12·10	11·32	12·30	—	12·00	15·44	12·60	15·07
1957	**Autumn**.....	**14·15**	**12·62**	**14·53**	**11·57**	**10·88**	**10·73**	**11·85**	—	**11·43**	**12·65**	**11·52**	**14·25**
1957	June.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	July.....	14·31	13·13	14·19	12·05	11·86	11·86	12·00	—	11·18	12·17	11·85	13·84
1957	August.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	**Winter**.....	**14·31**	**13·13**	**14·19**	**12·05**	**11·86**	**11·86**	**12·00**	—	**11·18**	**12·17**	**11·85**	**13·84**
1956/7	**Comm. Year**....	**13·84**	**12·79**	**14·28**	**11·75**	**11·32**	**11·14**	**11·71**	—	**11·17**	**12·36**	**11·57**	**14·07**

TABLE 4.

MONTHLY, SEASONAL AND ANNUAL VALUES OF SURFACE SALINITY FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1950	September.....	35·39	35·38	35·34	35·37	35·40	35·38	35·38	35·24	35·19	35·33	35·32	35·27
1950	October.....	35·39	35·38	35·40	35·42	35·49	35·45	35·42	35·35	35·27	35·33	35·19	35·29
1950	November.....	35·31	35·37	35·43	35·35	35·37	35·40	35·37	35·15	35·15	35·32	35·17	34·93
1950	**Spring.....**	**35·36**	**35·38**	**35·39**	**35·38**	**35·42**	**35·41**	**35·39**	**35·25**	**35·20**	**35·33**	**35·23**	**35·16**
1950	December.....	35·39	35·38	35·37	35·27	35·49	35·47	35·39	35·07	35·19	35·41	35·09	35·17
1951	January.....	35·35	35·10	35·03	34·97	35·50	35·34	35·21	34·84	35·07	35·03	34·83	35·03
1951	February.....	35·17	35·02	35·20	34·99	35·13	34·91	35·07	35·04	34·96	35·01	34·85	34·89
1950/1	**Summer.....**	**35·30**	**35·17**	**35·20**	**35·08**	**35·37**	**35·24**	**35·23**	**34·98**	**35·07**	**35·15**	**34·92**	**35·03**
1951	March.....	35·27	35·37	35·13	35·03	35·47	35·19	35·24	34·97	34·93	35·09	34·93	35·05
1951	April.....	35·55	35·54	35·44	34·88	35·59	35·48	35·41	35·07	35·05	34·97	34·83	34·99
1951	May.....	35·49	35·49	35·35	35·41	35·48	35·52	35·46	35·39	35·41	35·39	34·98	35·10
1951	**Autumn.....**	**35·44**	**35·47**	**35·31**	**35·11**	**35·51**	**35·40**	**35·37**	**35·14**	**35·13**	**35·15**	**34·91**	**35·05**
1951	June.....	35·48	35·50	35·55	35·28	35·50	35·44	35·46	35·25	35·25	35·16	34·81	35·26
1951	August.....	35·39	35·37	35·25	35·43	35·48	35·46	35·40	35·26	35·28	35·39	35·35	35·37
1951	**Winter.....**	**35·43**	**35·44**	**35·40**	**35·35**	**35·49**	**35·45**	**35·43**	**35·25**	**35·27**	**35·27**	**35·08**	**35·31**
1950/1	**Comm. Year....**	**35·38**	**35·35**	**35·32**	**35·22**	**35·45**	**35·37**	**35·35**	**35·15**	**35·16**	**35·22**	**35·03**	**35·12**
1951	September.....	35·43	35·44	35·41	35·44	35·43	35·42	35·43	35·26	35·17	35·50	35·43	35·28
1951	October.....	35·39	35·44	35·33	35·37	35·43	35·39	35·39	35·17	35·41	35·41	35·44	35·08
1951	November.....	35·46	35·46	35·26	35·48	35·43	35·44	35·42	35·21	35·21	35·48	35·43	35·12
1951	**Spring.....**	**35·43**	**35·45**	**35·33**	**35·43**	**35·43**	**35·42**	**35·41**	**35·21**	**35·26**	**35·46**	**35·43**	**35·16**
1951	December.....	35·43	35·35	35·17	35·32	35·47	35·50	35·37	35·19	35·43	35·32	35·21	35·26
1952	January.....	35·62	35·53	35·55	35·59	35·41	35·61	35·55	34·99	35·37	35·25	35·41	34·78
1952	February.....	35·14	35·16	35·43	34·99	35·28	35·35	35·23	34·98	35·08	35·21	35·19	34·90
1951/2	**Summer.....**	**35·40**	**35·35**	**35·38**	**35·30**	**35·39**	**35·49**	**35·38**	**35·05**	**35·29**	**35·26**	**35·27**	**34·98**
1952	March.....	35·23	35·25	35·23	35·39	35·46	35·43	35·33	35·10	35·32	35·03	34·87	35·14
1952	April.....	35·05	35·23	35·26	35·50	35·55	35·52	35·35	35·05	35·14	35·10	35·25	34·79
1952	May.....	35·32	35·35	35·30	35·32	35·35	35·23	35·31	35·07	35·12	35·07	35·17	35·08
1952	**Autumn.....**	**35·20**	**35·28**	**35·26**	**35·40**	**35·45**	**35·39**	**35·33**	**35·07**	**35·19**	**35·07**	**35·10**	**35·00**
1952	June.....	35·41	35·37	35·33	35·44	35·43	35·43	35·40	35·35	35·12	35·41	35·33	35·44
1952	July.....	35·44	35·43	35·39	35·35	35·44	35·39	35·41	35·26	35·26	35·23	35·17	35·26
1952	August.....	35·17	35·17	35·26	35·28	35·25	35·28	35·23	35·17	35·26	35·16	35·25	34·90
1952	**Winter..... ...**	**35·34**	**35·32**	**35·33**	**35·36**	**35·37**	**35·37**	**35·35**	**35·26**	**35·21**	**35·27**	**35·25**	**35·20**
1951/2	**Comm. Year....**	**35·34**	**35·35**	**35·33**	**35·37**	**35·41**	**35·42**	**35·37**	**35·15**	**35·24**	**35·26**	**35·26**	**35·09**

Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1950	September.....	35·28	35·27	35·27	34·99	34·92	34·98	35·15	34·88	35·07	35·12	35·02	35·21
1950	October.....	35·34	35·15	35·27	35·03	34·94	34·94	35·13	34·73	34·99	35·05	34·97	35·21
1950	November.....	35·15	34·95	35·12	34·77	34·63	34·73	34·96	34·69	34·75	34·87	34·77	35·07
1950	**Spring**.....	**35·26**	**35·12**	**35·22**	**34·93**	**34·83**	**34·88**	**35·08**	**34·77**	**34·94**	**35·01**	**34·92**	**35·17**
1950	December.....	35·04	35·11	35·15	34·79	34·75	34·71	35·02	34·76	34·79	34·97	34·83	35·11
1951	January.....	34·96	34·76	34·93	34·81	34·70	34·69	34·76	34·63	34·70	34·74	34·72	34·94
1951	February.....	34·91	34·81	34·92	34·77	34·81	34·76	34·72	34·69	34·71	34·74	34·74	34·90
1950/1	**Summer**.....	**34·97**	**34·89**	**35·00**	**34·79**	**34·75**	**34·72**	**34·83**	**34·69**	**34·73**	**34·82**	**34·76**	**34·99**
1951	March.....	34·83	34·82	34·95	34·75	34·74	34·76	34·75	34·71	34·74	34·73	34·74	34·97
1951	April.....	34·88	34·79	34·94	34·74	34·73	34·74	34·72	34·76	34·69	34·70	34·73	35·01
1951	May.....	35·23	34·78	35·18	34·85	34·74	34·79	34·81	34·67	35·05	35·08	34·86	35·15
1951	**Autumn**.....	**34·98**	**34·80**	**35·02**	**34·78**	**34·74**	**34·76**	**34·76**	**34·71**	**34·83**	**34·84**	**34·77**	**35·04**
1951	June.....	35·12	34·87	35·10	34·69	34·77	34·78	34·70	34·22	34·54	34·87	34·65	35·05
1951	August.....	35·34	35·12	35·30	35·12	34·90	34·90	35·05	34·56	34·79	35·32	34·95	35·21
1951	**Winter**.....	**35·23**	**34·99**	**35·20**	**34·91**	**34·83**	**34·84**	**34·87**	**34·39**	**34·67**	**35·09**	**34·80**	**35·13**
1950/1	**Comm. Year**....	**35·10**	**34·95**	**35·10**	**34·85**	**34·79**	**34·80**	**34·89**	**34·66**	**34·80**	**34·93**	**34·82**	**35·08**
1951	September.....	35·08	34·99	35·24	34·85	34·76	34·94	35·14	34·76	35·10	35·05	34·94	35·19
1951	October.....	35·30	35·35	35·31	35·28	34·81	34·79	34·97	34·45	34·81	35·19	34·90	35·19
1951	November.....	35·16	35·05	35·24	34·83	34·74	34·83	34·96	35·05	34·97	34·90	34·90	35·17
1951	**Spring**.....	**35·18**	**35·13**	**35·26**	**34·99**	**34·77**	**34·85**	**35·02**	**34·75**	**34·96**	**35·05**	**34·91**	**35·19**
1951	December.....	35·35	34·96	35·25	34·87	34·76	34·69	34·79	34·72	34·76	35·28	34·84	35·14
1952	January.....	35·07	35·07	35·13	34·76	34·72	34·74	35·05	34·72	34·81	34·78	34·80	35·14
1952	February.....	34·96	34·85	35·02	34·79	34·79	34·78	34·78	34·79	34·74	34·74	34·77	35·00
1951/2	**Summer**.....	**35·13**	**34·96**	**35·13**	**34·81**	**34·76**	**34·74**	**34·87**	**34·74**	**34·77**	**34·93**	**34·80**	**35·09**
1952	March.....	35·08	34·94	35·07	34·81	34·78	34·79	34·87	34·79	34·81	34·88	34·82	35·06
1952	April.....	34·79	34·83	34·99	34·79	34·78	34·76	34·79	34·74	34·76	34·85	34·78	35·03
1952	May.....	35·14	34·83	35·07	34·79	34·76	34·76	34·83	34·72	35·03	34·74	34·80	35·05
1952	**Autumn**.....	**35·00**	**34·87**	**35·04**	**34·80**	**34·77**	**34·77**	**34·83**	**34·75**	**34·87**	**34·82**	**34·80**	**35·05**
1952	June.....	35·21	35·16	35·30	34·81	34·74	34·76	34·78	34·67	35·05	35·05	34·84	35·17
1952	July.....	35·26	34·99	35·20	34·79	34·78	34·78	35·08	34·72	34·81	35·12	34·87	35·15
1952	August.....	34·88	34·87	35·07	34·94	34·76	34·69	34·78	34·61	34·76	35·01	34·79	35·02
1952	**Winter**.....	**35·12**	**35·01**	**35·19**	**34·85**	**34·76**	**34·74**	**34·88**	**34·67**	**34·87**	**35·06**	**34·83**	**35·11**
1951/2	**Comm. Year**....	**35·11**	**34·99**	**35·16**	**34·86**	**34·77**	**34·78**	**34·90**	**34·73**	**34·87**	**34·97**	**34·84**	**35·11**

TABLE 4 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VALUES OF SURFACE SALINITY FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1952	September.....	35·33	35·26	35·33	35·30	35·28	35·30	35·30	35·26	35·19	35·26	35·32	35·26
1952	October.....	35·33	35·28	35·28	35·35	35·35	35·37	35·33	35·19	35·25	35·25	35·25	35·25
1952	November.....	35·44	35·41	35·41	35·37	35·37	35·23	35·37	35·25	35·16	35·14	35·18	35·07
1952	**Spring.....**	**35·37**	**35·32**	**35·34**	**35·34**	**35·33**	**35·30**	**35·33**	**35·23**	**35·20**	**35·22**	**35·25**	**35·19**
1952	December.....	35·34	35·17	35·26	35·26	35·32	35·25	35·27	35·05	34·97	34·92	34·83	35·05
1953	January.....	35·21	35·21	35·16	35·07	35·36	35·43	35·24	34·94	34·96	35·17	35·05	34·97
1953	February.....	35·17	35·14	35·08	35·12	35·08	35·17	35·13	34·87	35·01	34·94	35·05	34·81
1952/3	**Summer.....**	**35·24**	**35·17**	**35·17**	**35·15**	**35·25**	**35·28**	**35·21**	**34·95**	**34·98**	**35·01**	**34·98**	**34·94**
1953	March.....	34·88	35·05	35·01	34·90	34·88	35·19	34·99	34·88	34·94	34·99	34·81	34·90
1953	April.....	35·17	35·30	35·32	35·05	35·10	35·05	35·17	34·96	35·05	35·14	34·85	35·05
1953	May.....	35·36	35·32	35·12	35·34	35·35	35·34	35·31	35·05	35·26	35·23	35·28	35·19
1953	**Autumn.....**	**35·14**	**35·22**	**35·15**	**35·10**	**35·11**	**35·19**	**35·15**	**34·96**	**35·08**	**35·12**	**34·98**	**35·05**
1953	June.....	35·14	35·16	35·30	35·26	35·35	35·34	35·26	35·16	35·12	35·03	35·01	35·08
1953	July.....	35·41	35·37	35·30	35·37	35·37	35·41	35·37	35·08	35·35	35·35	35·32	35·21
1953	August.....	35·28	35·25	35·28	35·32	35·34	35·34	35·30	35·16	35·21	35·28	35·23	35·14
1953	**Winter.....**	**35·28**	**35·26**	**35·29**	**35·32**	**35·35**	**35·36**	**35·31**	**35·13**	**35·23**	**35·22**	**35·19**	**35·14**
1952/3	**Comm. Year....**	**35·25**	**35·24**	**35·24**	**35·23**	**35·26**	**35·28**	**35·25**	**35·07**	**35·12**	**35·14**	**35·10**	**35·08**
1953	September.....	35·37	35·37	35·16	35·21	35·37	35·32	35·30	35·21	35·23	35·26	35·21	35·34
1953	October.....	35·32	35·32	35·14	35·37	35·34	35·39	35·31	35·07	35·37	35·43	35·36	35·14
1953	November.....	35·14	35·37	35·30	35·34	35·38	35·44	35·33	35·05	34·99	35·03	35·05	35·01
1953	**Spring.....**	**35·28**	**35·35**	**35·20**	**35·31**	**35·36**	**35·38**	**35·31**	**35·11**	**35·20**	**35·24**	**35·21**	**35·16**
1953	December.....	35·14	35·32	35·35	35·25	35·35	35·35	35·29	35·12	34·96	34·99	34·97	34·92
1954	January.....	35·41	35·34	35·17	35·10	35·39	35·35	35·29	35·05	34·97	35·06	34·96	34·96
1954	February.....	35·32	35·39	35·35	35·44	35·44	35·44	35·40	34·87	34·87	35·41	34·81	35·08
1953/4	**Summer.....**	**35·29**	**35·35**	**35·29**	**35·26**	**35·39**	**35·38**	**35·33**	**35·01**	**34·93**	**35·15**	**34·91**	**34·99**
1954	March.....	35·08	35·12	35·08	34·96	35·39	35·39	35·17	35·08	35·07	34·87	34·94	34·76
1954	April.....	35·55	35·46	35·35	35·46	35·55	35·55	35·49	35·14	35·09	35·41	35·01	35·26
1954	May.....	35·46	35·43	35·26	35·35	35·37	35·34	35·37	35·08	35·34	35·05	35·23	35·28
1954	**Autumn.....**	**35·36**	**35·34**	**35·23**	**35·26**	**35·44**	**35·43**	**35·34**	**35·10**	**35·17**	**35·11**	**35·06**	**35·10**
1954	June.....	35·26	35·12	35·23	35·30	35·35	35·23	35·25	34·99	35·08	35·30	35·23	35·26
1954	July.....	35·30	35·26	35·30	35·34	35·35	35·35	35·32	35·23	35·25	35·19	35·26	35·23
1954	August.....	35·32	35·39	35·28	35·32	35·34	35·35	35·33	35·03	34·99	35·26	35·23	35·25
1954	**Winter.....**	**35·29**	**35·26**	**35·27**	**35·32**	**35·35**	**35·31**	**35·30**	**35·08**	**35·11**	**35·25**	**35·24**	**35·25**
1953/4	**Comm. Year....**	**35·31**	**35·32**	**35·25**	**35·29**	**35·39**	**35·37**	**35·32**	**35·08**	**35·10**	**35·19**	**35·11**	**35·12**

Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1952	September	34·90	34·96	35·16	34·92	34·81	34·87	34·90	34·20	34·99	35·16	34·84	35·09
1952	October	35·21	35·26	35·24	34·95	34·78	34·72	34·87	34·81	34·88	35·21	34·89	35·14
1952	November	34·90	34·88	35·08	34·86	34·70	34·78	34·90	34·52	34·76	34·99	34·79	35·07
1952	Spring	35·00	35·03	35·16	34·91	34·76	34·79	34·89	34·51	34·88	35·12	34·84	35·10
1952	December	34·79	34·78	34·91	34·79	34·76	34·74	34·76	34·69	34·72	34·90	34·77	34·97
1953	January	34·90	34·90	34·98	34·74	34·72	34·72	34·83	34·70	34·67	34·87	34·75	34·98
1953	February	34·87	34·74	34·90	34·76	34·79	34·72	34·70	34·74	34·72	34·81	34·75	34·91
1952/3	Summer	34·85	34·81	34·93	34·76	34·76	34·73	34·76	34·71	34·70	34·86	34·75	34·95
1953	March	34·85	34·81	34·88	34·78	34·79	34·74	34·74	34·70	34·76	34·78	34·76	34·87
1953	April	34·83	34·76	34·95	34·76	34·72	34·64	34·81	34·64	34·76	34·72	34·72	34·93
1953	May	34·97	34·79	35·11	34·74	34·78	34·76	34·79	34·76	34·83	34·97	34·84	35·06
1953	Autumn	34·88	34·79	34·98	34·76	34·76	34·71	34·78	34·70	34·78	34·82	34·76	34·95
1953	June	35·12	34·96	35·07	34·78	34·74	34·76	35·08	34·11	34·78	34·96	34·74	35·01
1953	July	35·12	35·12	35·22	34·84	34·76	34·81	35·21	34·76	34·97	35·12	34·92	35·16
1953	August	35·23	35·25	35·20	34·92	34·78	34·90	34·88	34·67	34·83	34·67	34·81	35·10
1953	Winter	35·16	35·11	35·17	34·85	34·76	34·82	35·06	34·51	34·86	34·92	34·83	35·09
1952/3	Comm. Year	34·97	34·93	35·06	34·82	34·76	34·76	34·87	34·61	34·81	34·93	34·79	35·04
1953	September	35·17	34·96	35·20	34·92	34·88	34·90	35·17	34·83	35·08	35·19	35·00	35·16
1953	October	35·08	34·85	35·19	34·83	34·74	34·74	34·74	34·79	34·63	34·85	34·76	35·07
1953	November	35·14	34·94	35·03	34·78	34·70	34·70	34·87	34·74	34·72	34·85	34·77	35·03
1953	Spring	35·13	34·92	35·14	34·84	34·77	34·78	34·93	34·79	34·81	34·96	34·84	35·09
1953	December	35·07	34·90	34·99	34·97	34·76	34·72	34·90	34·72	34·79	34·79	34·81	35·02
1954	January	34·90	34·78	34·95	34·76	34·69	34·70	34·70	34·65	34·69	34·78	34·71	34·97
1954	February	34·94	34·87	34·98	34·72	34·76	34·79	34·72	34·70	34·67	34·70	34·72	35·01
1953/4	Summer	34·97	34·85	34·97	34·82	34·74	34·74	34·77	34·69	34 72	34·76	34·75	35·00
1954	March	34·79	34·81	34·90	34·74	34·74	34·69	34·76	34·65	34·74	34·72	34·72	34·92
1954	April	35·05	34·85	35·12	34·85	34·79	34·81	34·81	34·74	34·83	34·81	34·81	35·12
1954	May	35·32	35·05	35·19	34·81	34·76	34·74	34·81	*(32·38)	34·79	34·81	34·79	35·12
1954	Autumn	35·05	34·90	35·07	34·80	34·76	34·75	34·79	(34·69)	34·79	34·78	34·77	35·05
1954	June	35·17	34·87	35·13	34·81	34·83	34·81	35·08	34·67	35·05	34·96	34·89	35·08
1954	July	35·34	35·17	35·24	35·17	34·43	34·88	35·26	34·25	35·23	35·25	34·92	35·15
1954	August	35·26	35·21	35·18	35·14	34·97	34·99	35·16	33·77	35·17	35·14	34·91	35·13
1954	Winter	35·26	35·08	35·18	35·04	34·74	34·89	35·17	34·23	35·15	35·12	34·91	35·12
1953/4	Comm. Year	35·10	34·94	35·09	34·87	34·75	34·79	34·91	34·59	34·87	34·90	34·82	35·06

TABLE 4 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VALUES OF SURFACE SALINITY FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1954	September.....	35·35	35·35	35·35	35·36	35·35	35·36	35·35	35·35	35·32	35·35	35·36	35·35
1954	October.....	35·43	35·34	35·37	35·39	35·46	35·46	35·41	35·34	35·34	35·30	35·35	35·12
1954	November.....	35·39	35·26	35·41	35·23	35·41	35·16	35·31	35·10	34·97	35·43	35·14	35·25
1954	**Spring**.....	**35·39**	**35·32**	**35·38**	**35·33**	**35·41**	**35·33**	**35·36**	**35·26**	**35·21**	**35·36**	**35·28**	**35·24**
1954	December.....	35·37	35·34	35·25	35·35	35·39	35·39	35·35	34·92	35·03	35·41	35·35	35·34
1955	January.....	35·03	35·03	35·19	35·19	35·21	35·44	35·18	34·97	35·10	35·07	34·83	34·88
1955	February.....	35·23	35·21	34·94	35·39	35·34	35·43	35·26	34·85	34·92	34·88	34·69	34·85
1954/5	**Summer**.....	**35·21**	**35·19**	**35·13**	**35·31**	**35·31**	**35·42**	**35·26**	**34·91**	**35·02**	**35·12**	**34·96**	**35·02**
1955	March.....	35·03	35·28	34·94	34·92	34·94	35·05	35·03	34·81	34·90	34·81	34·81	34·81
1955	April.....	35·39	35·12	35·28	35·30	(35·43)	35·46	35·33	35·25	35·30	35·34	35·32	34·88
1955	May.....	35·30	35·34	35·26	35·21	(35·27)	35·21	35·27	35·14	35·21	35·25	34·97	35·17
1955	**Autumn**.....	**35·24**	**35·25**	**35·16**	**35·14**	**(35·21)**	**35·24**	**35·21**	**35·07**	**35·14**	**35·13**	**35·03**	**34·95**
1955	June.....	35·21	35·19	35·19	35·21	(35·22)	35·23	35·21	35·01	35·01	35·07	35·21	34·93
1955	July.....	35·30	35·26	35·25	35·25	(35·27)	35·25	35·26	35·28	35·28	35·14	35·23	35·17
1955	August.....	35·30	35·26	35·26	35·21	(35·25)	35·17	35·24	35·23	35·19	35·19	35·14	35·16
1955	**Winter**.....	**35·27**	**35·24**	**35·23**	**35·22**	**(35·25)**	**35·22**	**35·24**	**35·17**	**35·16**	**35·13**	**35·19**	**35·09**
1954/5	**Comm. Year**....	**35·28**	**35·25**	**35·22**	**35·25**	**(35·29)**	**35·30**	**35·27**	**35·10**	**35·13**	**35·19**	**35·12**	**35·08**
1955	September.....	35·35	35·35	35·32	35·37	(35·36)	35·37	35·35	35·18	35·32	35·34	35·34	35·34
1955	October.....	35·41	35·23	35·30	35·41	(35·41)	35·41	35·36	35·26	35·30	35·34	35·35	35·03
1955	November.....	35·41	35·41	35·19	35·39	(35·40)	35·39	35·37	35·19	35·17	35·34	35·35	35·28
1955	**Spring**.....	**35·39**	**35·33**	**35·27**	**35·39**	**(35·39)**	**35·39**	**35·36**	**35·21**	**35·26**	**35·34**	**35·35**	**35·22**
1955	December.....	35·38	35·40	35·24	35·31	(35·38)	35·44	35·36	34·95	35·29	35·29	34·99	35·01
1956	January.....	35·35	35·37	35·25	35·44	(35·39)	35·46	35·38	35·01	35·30	35·37	34·96	34·99
1956	February.....	35·19	35·05	34·97	34·94	(35·20)	35·26	35·10	34·83	35·08	34·97	34·87	35·16
1955/6	**Summer**.....	**35·31**	**35·27**	**35·15**	**35·23**	**(35·32)**	**35·39**	**35·28**	**34·93**	**35·22**	**35·21**	**34·94**	**35·05**
1956	March.....	35·48	35·14	35·16	35·21	(35·35)	35·37	35·29	35·08	35·05	34·90	34·97	34·74
1956	April.....	35·38	35·07	35·08	35·16	(35·28)	35·25	35·20	34·97	35·12	35·10	35·07	35·05
1956	May.....	35·43	35·41	35·30	35·25	(35·37)	35·23	35·33	35·05	35·39	35·37	35·30	35·34
1956	**Autumn**.....	**35·43**	**35·21**	**35·18**	**35·21**	**(35·33)**	**35·28**	**35·27**	**35·03**	**35·19**	**35·12**	**35·11**	**35·04**
1956	June.....	35·44	35·44	35·37	35·25	(35·36)	35·39	35·37	35·37	35·37	35·26	35·26	35·35
1956	July.....	35·28	35·32	35·30	35·34	(35·37)	35·34	35·33	35·30	35·26	35·37	35·34	35·35
1956	August.....	35·28	35·32	35·37	35·34	(35·33)	35·35	35·33	35·30	35·34	35·28	34·76	35·32
1956	**Winter**.....	**35·33**	**35·36**	**35·35**	**35·31**	**(35·35)**	**35·36**	**35·34**	**35·32**	**35·32**	**35·30**	**35·12**	**35·34**
1955/6	**Comm. Year**....	**35·37**	**35·29**	**35·24**	**35·28**	**(35·35)**	**35·35**	**35·31**	**35·12**	**35·25**	**35·24**	**35·13**	**35·16**

INDIVIDUAL STATIONS AND SUB-AREAS, SEPTEMBER, 1950–AUGUST, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1954	September	35·35	35·03	35·30	34·97	34·79	34·78	35·01	34·67	34·79	34·96	34·85	35·16
1954	October	35·03	35·14	35·23	34·99	34·70	34·74	34·88	34·65	34·81	35·19	34·85	35·15
1954	November	34·90	35·03	35·12	34·74	34·72	34·67	34·70	34·74	34·70	34·76	34·72	35·04
1954	**Spring**	**35·09**	**35·07**	**35·22**	**34·90**	**34·74**	**34·73**	**34·86**	**34·69**	**34·77**	**34·97**	**34·81**	**35·12**
1954	December	34·87	34·71	35·09	34·72	34·69	34·67	34·72	34·69	34·76	35·03	34·75	35·05
1955	January	34·83	34·92	34·94	34·74	34·72	34·72	34·79	34·72	34·78	34·70	34·74	34·94
1955	February	34·85	34·74	34·83	34·76	34·72	34·74	34·74	34·72	34·69	34·70	34·72	34·92
1954/5	**Summer**	**34·85**	**34·79**	**34·95**	**34·74**	**34·71**	**34·71**	**34·75**	**34·71**	**34·74**	**34·81**	**34·74**	**34·97**
1955	March	34·79	34·87	34·83	34·81	34·79	34·76	34·78	34·72	34·78	34·76	34·77	34·87
1955	April	35·05	34·94	35·15	34·72	34·78	34·72	34·98	34·69	34·94	34·74	34·80	35·08
1955	May	35·10	35·01	35·12	34·88	34·83	34·81	34·94	34·81	34·87	34·94	34·87	35·08
1955	**Autumn**	**34·98**	**34·94**	**35·03**	**34·80**	**34·80**	**34·76**	**34·90**	**34·74**	**34·86**	**34·81**	**34·81**	**35·01**
1955	June	35·00	34·79	35·00	34·78	34·74	34·76	34·79	34·65	34·79	34·75	34·75	34·98
1955	July	35·28	35·26	35·23	34·92	34·60	34·79	34·90	34·20	34·47	35·23	34·73	35·07
1955	August	35·16	35·05	35·16	35·03	34·67	34·45	34·90	33·04	34·74	34·97	34·54	34·97
1955	**Winter**	**35·15**	**35·03**	**35·13**	**34·91**	**34·67**	**34·67**	**34·86**	**33·96**	**34·67**	**34·98**	**34·67**	**35·00**
1954/5	**Comm. Year**	**35·02**	**34·96**	**35·08**	**34·84**	**34·73**	**34·72**	**34·84**	**34·53**	**34·76**	**34·89**	**34·76**	**35·02**
1955	September	35·35	35·34	35·32	34·99	34·79	34·81	35·25	34·81	35·25	35·12	35·00	35·22
1955	October	35·17	35·23	35·24	35·16	34·70	34·74	35·23	34·74	35·03	35·26	34·98	35·19
1955	November	35·03	34·76	35·16	34·78	34·67	34·70	34·76	34·72	34·67	34·72	34·72	35·07
1955	**Spring**	**35·18**	**35·11**	**35·24**	**34·98**	**34·72**	**34·75**	**35·08**	**34·76**	**34·98**	**35·03**	**34·90**	**35·16**
1955	December	35·18	34·85	35·08	34·74	34·62	34·67	34·68	34·66	34·69	34·86	34·70	35·03
1956	January	35·10	34·74	35·07	34·70	34·76	34·65	34·65	34·67	34·65	34·69	34·68	35·03
1956	February	34·95	34·81	34·95	34·79	34·72	34·66	34·78	34·68	34·67	34·70	34·71	34·91
1955/6	**Summer**	**35·08**	**34·80**	**35·03**	**34·74**	**34·70**	**34·66**	**34·70**	**34·67**	**34·67**	**34·75**	**34·70**	**34·99**
1956	March	34·90	34·76	34·91	34·72	34·70	34·69	34·69	34·69	34·69	34·74	34·70	34·95
1956	April	34·97	34·81	35·01	34·70	34·70	34·70	34·79	34·67	34·70	34·81	34·72	34·97
1956	May	35·23	34·90	35·23	34·88	34·70	34·69	34·72	34·36	35·03	35·17	34·79	35·11
1956	**Autumn**	**35·03**	**34·82**	**35·05**	**34·77**	**34·70**	**34·69**	**34·73**	**34·57**	**34·81**	**34·91**	**34·74**	**35·01**
1956	June	35·28	35·05	35·28	34·90	34·78	34·99	35·06	34·69	35·08	35·05	34·94	35·19
1956	July	35·28	35·07	35·28	34·99	34·60	34·90	34·89	34·72	34·87	35·16	34·88	35·15
1956	August	35·28	35·08	35·19	35·01	34·88	34·81	34·99	33·87	34·83	34·96	34·76	35·09
1956	**Winter**	**35·28**	**35·07**	**35·25**	**34·97**	**34·75**	**34·90**	**34·98**	**34·43**	**34·93**	**35·06**	**34·86**	**35·14**
1955/6	**Comm. Year**	**35·14**	**34·95**	**35·14**	**34·86**	**34·72**	**34·75**	**34·87**	**34·61**	**34·85**	**34·94**	**34·80**	**35·07**

TABLE 4 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VALUES OF SURFACE SALINITY FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1956	September.....	35·39	35·39	35·41	35·43	(35·39)	35·43	**35·41**	35·25	35·35	35·35	35·39	35·39
1956	October.....	35·41	35·35	35·16	35·35	(35·41)	35·43	**35·35**	35·10	35·19	35·34	35·12	34·92
1956	November.....	35·44	35·43	35·32	35·37	(35·42)	35·40	**35·40**	35·05	35·10	35·35	35·32	35·10
1956	**Spring.....**	**35·41**	**35·39**	**35·30**	**35·38**	**(35·41)**	**35·42**	**35·39**	**35·13**	**35·21**	**35·35**	**35·28**	**35·14**
1956	December.....	35·30	35·25	35·23	34·97	(35·16)	35·23	**35·19**	34·99	34·94	34·90	34·74	34·96
1957	January.....	35·23	34·87	34·98	35·12	(35·35)	35·43	**35·16**	34·87	34·71	35·00	34·82	34·70
1957	February.....	35·46	35·35	35·28	35·37	(35·44)	35·44	**35·39**	34·90	35·08	35·32	35·23	34·99
1956/7	**Summer.....**	**35·33**	**35·16**	**35·16**	**35·15**	**(35·32)**	**35·37**	**35·25**	**34·92**	**34·91**	**35·07**	**34·93**	**34·88**
1957	March.....	35·26	35·10	34·94	35·14	(35·20)	35·16	**35·13**	34·90	34·90	34·90	35·03	34·87
1957	April.....	35·10	35·14	35·30	35·34	(35·23)	35·35	**35·24**	34·91	35·07	35·10	35·23	35·03
1957	May.....	35·35	35·28	35·35	35·22	(35·32)	35·30	**35·30**	35·21	35·33	35·30	35·21	35·30
1957	**Autumn.....**	**35·24**	**35·17**	**35·20**	**35·23**	**(35·25)**	**35·27**	**35·23**	**35·01**	**35·10**	**35·10**	**35·16**	**35·07**
1957	June.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	July.....	35·21	35·23	35·19	35·25	(35·25)	35·28	**35·23**	35·13	35·14	35·19	35·21	35·07
1957	August.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	**Winter.....**	**35·21**	**35·23**	**35·19**	**35·25**	**(35·25)**	**35·28**	**35·23**	**35·13**	**35·14**	**35·19**	**35·21**	**35·07**
1956/7	**Comm. Year....**	**35·30**	**35·24**	**35·21**	**35·25**	**(35·31)**	**35·33**	**35·27**	**35·05**	**35·09**	**35·18**	**35·15**	**35·04**

Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1956	September	35·23	35·12	**35·30**	35·01	34·83	34·87	34·88	34·20	34·87	35·35	**34·86**	**35·18**
1956	October	34·99	34·88	**35·08**	34·79	34·70	34·79	34·87	34·76	34·76	34·83	**34·79**	**35·06**
1956	November	34·78	34·85	**35·08**	34·72	34·73	34·65	34·74	34·69	34·74	35·00	**34·75**	**35·06**
1956	**Spring**	**35·00**	**34·95**	**35·15**	**34·84**	**34·75**	**34·77**	**34·83**	**34·55**	**34·79**	**35·06**	**34·80**	**35·10**
1956	December	34·87	34·80	**34·89**	34·72	34·75	34·72	34·69	34·67	34·71	34·76	**34·72**	**34·92**
1957	January	34·74	34·81	**34·81**	34·76	34·70	34·68	34·68	34·66	34·72	34·70	**34·70**	**34·88**
1957	February	34·99	34·78	**35·04**	34·73	34·72	34·70	34·79	34·68	34·81	34·90	**34·76**	**35·05**
1956/7	**Summer**	**34·87**	**34·80**	**34·91**	**34·74**	**34·72**	**34·70**	**34·72**	**34·67**	**34·75**	**34·79**	**34·73**	**34·95**
1957	March	34·90	34·78	**34·90**	34·72	34·69	34·67	34·69	34·66	34·70	34·69	**34·69**	**34·89**
1957	April	34·97	34·78	**35·01**	34·72	34·74	34·72	34·85	34·72	34·87	34·67	**34·76**	**34·99**
1957	May	35·33	35·07	**35·25**	34·92	34·70	34·76	34·87	34·61	34·45	35·25	**34·79**	**35·11**
1957	**Autumn**	**35·07**	**34·88**	**35·05**	**34·79**	**34·71**	**34·72**	**34·80**	**34·66**	**34·67**	**34·87**	**34·75**	**35·00**
1957	June	—	—	—	—	—	—	—	—	—	—	—	—
1957	July	35·14	34·99	**35·12**	34·74	34·69	34·66	34·85	34·57	34·76	34·92	**34·74**	**35·01**
1957	August	—	—	—	—	—	—	—	—	—	—	—	—
1957	**Winter**	**35·14**	**34·99**	**35·12**	**34·74**	**34·69**	**34·66**	**34·85**	**34·57**	**34·76**	**34·92**	**34·74**	**35·01**
1956/7	**Comm. Year**	**35·02**	**34·91**	**35·06**	**34·78**	**34·72**	**34·71**	**34·80**	**34·61**	**34·74**	**34·91**	**34·75**	**35·02**

* Actual value found, but it has not been included in the seasonal average.

TABLE 5.

MONTHLY, SEASONAL AND ANNUAL VALUES OF 20 METRES SALINITY FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1950	September.....	35·39	35·38	35·33	35·36	35·35	35·35	35·36	35·23	35·18	35·33	35·32	35·28
1950	October.....	35·39	35·37	35·35	35·43	35·45	35·45	35·41	35·25	35·27	35·31	35·19	35·25
1950	November.....	35·29	35·37	35·40	35·31	35·37	35·40	35·36	35·09	35·01	35·30	35·17	34·94
1950	**Spring.....**	**35·36**	**35·37**	**35·36**	**35·37**	**35·29**	**35·40**	**35·37**	**35·19**	**35·15**	**35·31**	**35·23**	**35·16**
1950	December.....	35·37	35·33	35·35	35·29	35·51	35·47	35·39	35·06	35·19	35·41	35·10	35·07
1951	January.....	35·35	35·07	34·94	34·92	35·37	35·16	35·13	34·88	35·05	34·97	34·81	35·01
1951	February.....	35·05	35·03	35·15	34·99	35·19	34·93	35·06	35·04	34·97	35·05	34·88	34·89
1950/1	**Summer.....**	**35·26**	**35·14**	**35·15**	**35·07**	**35·36**	**35·19**	**35·19**	**34·99**	**35·07**	**35·14**	**34·93**	**34·99**
1951	March.....	35·25	35·35	35·14	34·97	35·43	35·21	35·23	34·95	34·90	35·07	34·93	35·01
1951	April.....	35·55	35·54	35·35	34·88	35·57	35·48	35·39	35·08	35·03	34·94	34·87	34·99
1951	May.....	35·49	35·49	35·35	35·39	35·50	35·52	35·46	35·38	35·41	35·38	34·98	35·07
1951	**Autumn.....**	**35·43**	**35·46**	**35·28**	**35·08**	**35·50**	**35·40**	**35·36**	**35·14**	**35·11**	**35·13**	**34·93**	**35·02**
1951	June.....	35·48	35·50	35·55	35·19	35·50	35·44	35·44	35·25	35·25	35·19	34·85	35·25
1951	August.....	35·39	35·37	35·23	35·41	35·48	35·48	35·39	35·26	35·28	35·37	35·35	35·35
1951	**Winter.....**	**35·43**	**35·44**	**35·39**	**35·30**	**35·49**	**35·46**	**35·42**	**35·25**	**35·27**	**35·28**	**35·10**	**35·30**
1950/1	**Comm. Year....**	**35·36**	**35·35**	**35·29**	**35·19**	**35·43**	**35·35**	**35·33**	**35·13**	**35·14**	**35·21**	**35·04**	**35·10**
1951	September.....	35·43	35·44	35·41	35·43	35·43	35·42	35·43	35·26	35·17	35·50	35·43	35·28
1951	October.....	35·39	35·44	35·33	35·37	35·43	35·39	35·39	35·17	35·41	35·41	35·43	35·08
1951	November.....	35·46	35·44	35·23	35·48	35·43	35·44	35·41	35·21	35·21	35·48	35·43	35·12
1951	**Spring.....**	**35·43**	**35·44**	**35·32**	**35·43**	**35·43**	**35·42**	**35·41**	**35·21**	**35·26**	**35·46**	**35·43**	**35·16**
1951	December.....	35·43	35·35	35·17	35·32	35·46	35·48	35·37	35·17	35·43	35·32	35·21	35·26
1952	January.....	35·62	35·53	35·55	35·55	35·35	35·61	35·53	34·98	35·32	35·28	35·37	35·01
1952	February.....	35·16	35·28	35·32	35·12	35·24	35·34	35·24	35·08	35·08	35·19	35·16	35·16
1951/2	**Summer.....**	**35·40**	**35·39**	**35·35**	**35·33**	**35·35**	**35·48**	**35·38**	**35·08**	**35·28**	**35·26**	**35·25**	**35·14**
1952	March.....	35·10	35·14	35·08	35·32	35·46	35·30	35·23	34·99	34·99	34·96	34·93	34·94
1952	April.....	35·12	35·23	35·26	35·50	35·55	35·52	35·36	34·97	35·14	35·10	35·05	35·01
1952	May.....	35·30	35·35	35·30	35·32	35·35	35·23	35·31	35·07	35·12	35·03	35·17	35·08
1952	**Autumn.....**	**35·17**	**35·24**	**35·21**	**35·38**	**35·45**	**35·35**	**35·30**	**35·01**	**35·08**	**35·03**	**35·05**	**35·01**
1952	June.....	35·41	35·35	35·33	35·41	35·43	35·43	35·39	35·30	35·21	35·41	35·21	35·44
1952	July.....	35·44	35·41	35·39	35·35	35·41	35·39	35·40	35·26	35·23	35·17	35·17	35·19
1952	August.....	35·14	35·17	35·23	35·25	35·23	35·28	35·22	35·14	35·23	35·05	35·25	34·96
1952	**Winter.....**	**35·33**	**35·31**	**35·32**	**35·34**	**35·36**	**35·37**	**35·34**	**35·23**	**35·22**	**35·21**	**35·21**	**35·20**
1951/2	**Comm. Year....**	**35·33**	**35·34**	**35·30**	**35·37**	**35·40**	**35·40**	**35·36**	**35·13**	**35·21**	**35·24**	**35·23**	**35·13**

Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1950	September	35·24	35·26	35·26	34·97	34·86	34·93	35·10	34·95	35·01	35·06	34·98	35·19
1950	October	35·27	35·17	35·24	35·03	34·84	34·93	35·22	34·78	34·97	35·08	34·98	35·20
1950	November	35·13	34·85	35·07	34·72	34·63	34·67	34·80	34·74	34·72	34·87	34·72	35·03
1950	**Spring**	**35·21**	**35·09**	**35·19**	**34·91**	**34·78**	**34·84**	**35·04**	**34·82**	**34·90**	**35·00**	**34·89**	**35·14**
1950	December	35·05	35·07	35·14	34·79	34·73	34·72	35·07	34·71	34·79	34·99	34·83	35·10
1951	January	34·87	34·76	34·91	34·79	34·70	34·65	34·72	34·63	34·69	34·74	34·70	34·90
1951	February	34·89	34·81	34·93	34·74	34·78	34·75	34·70	34·67	34·70	34·73	34·72	34·90
1950/1	**Summer**	**34·94**	**34·88**	**34·99**	**34·77**	**34·74**	**34·71**	**34·83**	**34·67**	**34·73**	**34·82**	**34·75**	**34·97**
1951	March	34·83	34·81	34·93	34·75	34·70	34·74	34·74	34·67	34·71	34·69	34·71	34·94
1951	April	34·81	34·78	34·93	34·76	34·70	34·72	34·72	34·70	34·69	34·67	34·71	34·99
1951	May	35·21	34·83	35·18	34·81	34·72	34·76	34·81	34·65	34·85	35·07	34·81	35·13
1951	**Autumn**	**34·95**	**34·81**	**35·01**	**34·77**	**34·71**	**34·74**	**34·76**	**34·67**	**34·75**	**34·81**	**34·74**	**35·02**
1951	June	35·12	34·83	35·11	34·69	34·77	34·78	34·70	34·21	34·72	34·87	34·68	35·06
1951	August	35·34	35·10	35·29	35·12	34·90	34·90	35·05	34·63	34·79	35·30	34·96	35·21
1951	**Winter**	**35·23**	**34·97**	**35·20**	**34·91**	**34·83**	**34·84**	**34·87**	**34·42**	**34·75**	**35·09**	**34·82**	**35·13**
1950/1	**Comm. Year**	**35·07**	**34·93**	**35·09**	**34·83**	**34·76**	**34·78**	**34·88**	**34·67**	**34·79**	**34·92**	**34·80**	**35·06**
1951	September	35·05	34·99	35·24	34·81	34·76	34·94	35·10	34·79	34·99	35·01	34·91	35·18
1951	October	35·30	35·34	35·31	35·11	34·81	34·78	35·05	34·74	34·81	35·19	34·93	35·20
1951	November	35·17	35·05	35·24	34·83	34·70	34·76	34·94	34·74	34·85	34·94	34·82	35·15
1951	**Spring**	**35·17**	**35·13**	**35·26**	**34·92**	**34·76**	**34·83**	**35·03**	**34·76**	**34·88**	**35·05**	**34·89**	**35·18**
1951	December	35·35	34·97	35·24	34·87	34·74	34·76	34·79	34·69	34·74	35·28	34·84	35·14
1952	January	35·17	35·07	35·17	34·96	34·70	34·74	35·12	34·69	34·85	34·76	34·83	35·16
1952	February	35·08	34·92	35·10	34·85	34·83	34·74	35·03	34·74	34·83	34·72	34·82	35·04
1951/2	**Summer**	**35·20**	**34·99**	**35·17**	**34·89**	**34·76**	**34·75**	**34·98**	**34·71**	**34·81**	**34·92**	**34·83**	**35·11**
1952	March	34·96	34·96	34·96	34·76	34·74	34·76	34·97	34·76	34·97	34·78	34·82	34·99
1952	April	34·90	34·85	35·00	34·78	34·72	34·70	34·88	34·74	34·74	34·85	34·77	35·03
1952	May	35·14	34·86	35·07	34·74	34·76	34·74	34·87	34·70	35·03	34·76	34·80	35·05
1952	**Autumn**	**35·00**	**34·89**	**35·01**	**34·76**	**34·74**	**34·73**	**34·91**	**34·73**	**34·91**	**34·80**	**34·80**	**35·02**
1952	June	35·23	35·12	35·27	34·81	34·74	34·78	34·90	34·78	34·94	35·01	34·85	35·16
1952	July	35·25	34·99	35·18	34·76	34·74	34·76	34·94	34·72	34·76	35·10	34·83	35·12
1952	August	35·12	34·81	35·08	34·94	34·76	34·74	34·81	34·60	34·76	35·05	34·81	35·03
1952	**Winter**	**35·20**	**34·97**	**35·18**	**34·84**	**34·75**	**34·76**	**34·88**	**34·70**	**34·82**	**35·05**	**34·83**	**35·10**
1951/2	**Comm. Year**	**35·14**	**34·99**	**35·16**	**34·85**	**34·75**	**34·77**	**34·95**	**34·72**	**34·86**	**34·95**	**34·84**	**35·10**

TABLE 5 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VALUES OF 20 METRES SALINITY FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1952	September.....	35·33	35·26	35·33	35·30	35·26	35·30	35·30	35·26	35·19	35·25	35·26	35·30
1952	October.....	35·32	35·25	35·28	35·35	35·35	35·37	35·34	35·19	35·23	35·19	35·25	35·25
1952	November.....	35·44	35·41	35·41	35·10	35·37	35·39	35·35	35·14	35·12	35·17	35·14	35·16
1952	**Spring**.....	**35·36**	**35·31**	**35·34**	**35·25**	**35·33**	**35·35**	**35·32**	**35·20**	**35·18**	**35·20**	**35·22**	**35·24**
1952	December.....	35·34	35·10	35·25	35·12	35·30	35·23	35·22	35·05	34·97	34·92	34·87	35·05
1953	January.....	35·30	35·21	35·19	35·16	35·25	35·43	35·26	34·92	34·92	35·07	34·99	35·03
1953	February.....	35·17	35·14	35·07	35·12	35·08	35·17	35·13	34·87	35·01	34·94	34·99	34·82
1952/3	**Summer**.....	**35·27**	**35·15**	**35·17**	**35·13**	**35·21**	**35·28**	**35·20**	**34·95**	**34·97**	**34·98**	**34·95**	**34·97**
1953	March.....	35·07	35·19	35·01	34·87	34·90	35·23	35·05	34·96	35·01	34·99	34·96	34·94
1953	April.....	35·14	35·19	35·32	35·01	35·08	35·01	35·13	34·96	35·05	35·10	34·87	35·03
1953	May.....	35·36	35·32	35·12	35·34	35·35	35·34	35·31	35·01	35·19	34·99	35·26	35·19
1953	**Autumn**.....	**35·19**	**35·23**	**35·15**	**35·07**	**35·11**	**35·19**	**35·16**	**34·98**	**35·08**	**35·03**	**35·03**	**35·05**
1953	June.....	35·14	35·14	35·30	35·26	35·35	35·34	35·25	35·16	35·14	35·01	35·01	35·07
1953	July.....	35·41	35·37	35·34	35·32	35·35	35·35	35·36	35·07	35·35	35·35	35·32	35·16
1953	August.....	35·28	35·25	35·28	35·32	35·34	35·34	35·30	35·16	35·21	35·28	35·19	35·14
1953	**Winter**.....	**35·28**	**35·25**	**35·31**	**35·30**	**35·35**	**35·34**	**35·30**	**35·13**	**35·23**	**35·21**	**35·17**	**35·12**
1952/3	**Comm. Year**....	**35·27**	**35·24**	**35·24**	**35·19**	**35·25**	**35·29**	**35·25**	**35·06**	**35·12**	**35·11**	**35·09**	**35·09**
1953	September.....	35·37	35·37	35·12	35·17	35·35	35·32	35·28	35·19	35·21	35·23	35·21	35·33
1953	October.....	35·32	35·32	35·12	35·35	35·34	35·39	35·31	34·99	35·37	35·41	35·32	35·14
1953	November.....	35·14	35·41	35·28	35·32	35·37	35·44	35·33	35·05	35·10	35·11	35·01	34·97
1953	**Spring**.....	**35·28**	**35·37**	**35·17**	**35·28**	**35·35**	**35·38**	**35·31**	**35·08**	**35·23**	**35·25**	**35·18**	**35·15**
1953	December.....	35·14	35·26	35·34	35·23	35·35	35·32	35·27	35·12	34·99	34·96	34·97	34·88
1954	January.....	35·32	35·26	35·21	35·10	35·37	35·30	35·26	35·05	34·96	35·07	34·94	34·96
1954	February.....	35·14	35·17	35·26	35·35	35·43	35·43	35·30	34·90	34·78	35·16	34·70	34·96
1953/4	**Summer**.....	**35·20**	**35·23**	**35·27**	**35·23**	**35·38**	**35·35**	**35·28**	**35·02**	**34·91**	**35·06**	**34·87**	**34·93**
1954	March.....	35·03	35·17	35·25	35·23	35·35	35·34	35·23	35·12	35·10	34·92	35·10	34·97
1954	April.....	35·55	35·35	35·12	35·46	35·55	35·55	35·43	35·14	35·01	35·41	34·90	35·08
1954	May.....	35·46	35·43	35·05	35·35	35·37	35·34	35·33	35·08	35·21	35·03	35·08	35·25
1954	**Autumn**.....	**35·35**	**35·32**	**35·14**	**35·35**	**35·42**	**35·41**	**35·33**	**35·11**	**35·11**	**35·12**	**35·03**	**35·10**
1954	June.....	35·26	35·12	35·23	35·30	35·35	35·23	35·25	34·99	35·08	35·30	35·23	35·26
1954	July.....	35·30	35·26	35·30	35·35	35·35	35·35	35·32	35·23	35·23	35·25	35·28	35·21
1954	August.....	35·32	35·39	35·28	35·30	35·32	35·34	35·33	35·08	35·19	35·28	35·28	35·26
1954	**Winter**.....	**35·29**	**35·26**	**35·27**	**35·32**	**35·34**	**35·31**	**35·30**	**35·10**	**35·17**	**35·28**	**35·26**	**35·24**
1953/4	**Comm. Year**....	**35·28**	**35·29**	**35·21**	**35·29**	**35·37**	**35·36**	**35·30**	**35·08**	**35·10**	**35·18**	**35·09**	**35·11**

Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1952	September.....	35·12	34·96	35·19	34·94	34·83	34·84	35·07	34·78	34·99	35·14	34·94	35·14
1952	October.....	35·21	35·21	35·22	35·07	34·72	34·76	35·14	34·79	35·05	35·21	34·96	35·16
1952	November.....	35·17	34·96	35·12	34·90	34·74	34·78	34·88	34·70	34·88	34·85	34·82	35·09
1952	Spring.....	35·17	35·04	35·18	34·97	34·76	34·79	35·03	34·76	34·97	35·07	34·91	35·13
1952	December.....	34·96	34·76	34·94	34·78	34·74	34·70	34·78	34·67	34·76	34·96	34·77	34·97
1953	January.....	34·92	34·94	34·97	34·79	34·67	34·69	34·87	34·65	34·76	34·96	34·77	34·99
1953	February.....	34·88	34·78	34·90	34·78	34·76	34·74	34·69	34·69	34·73	34·85	34·75	34·91
1952/3	Summer.....	34·92	34·83	34·94	34·78	34·72	34·71	34·78	34·67	34·75	34·92	34·76	34·96
1953	March.....	34·88	34·86	34·94	34·82	34·79	34·74	34·78	34·69	34·76	34·78	34·77	34·91
1953	April.....	34·83	34·72	34·94	34·74	34·79	34·69	34·87	34·74	34·74	34·72	34·76	34·93
1953	May.....	34·96	34·92	35·07	34·81	34·81	34·83	34·81	34·81	34·79	34·97	34·83	35·06
1953	Autumn.....	34·89	34·83	34·98	34·79	34·80	34·75	34·82	34·75	34·76	34·82	34·78	34·97
1953	June.....	35·12	34·96	35·07	34·78	34·72	34·72	35·08	34·70	34·76	34·94	34·81	35·03
1953	July.....	35·08	35·12	35·21	34·83	34·76	34·81	35·16	34·76	34·92	35·14	34·91	35·15
1953	August.....	35·23	35·23	35·21	34·88	34·78	34·94	34·88	34·65	34·83	34·66	34·80	35·09
1953	Winter.....	35·14	35·10	35·16	34·83	34·75	34·82	35·04	34·70	34·84	34·91	34·84	35·09
1952/3	Comm. Year....	35·03	34·95	35·06	34·84	34·76	34·77	34·92	34·72	34·83	34·93	34·82	35·04
1953	September.....	35·10	34·99	35·18	34·90	34·83	34·88	35·16	34·83	34·87	35·16	34·95	35·13
1953	October.....	35·08	34·85	35·17	34·81	34·67	34·72	34·74	34·72	34·63	34·85	34·73	35·06
1953	November.....	35·11	34·96	35·04	34·88	34·70	34·69	34·81	34·64	34·74	34·85	34·76	35·03
1953	Spring.....	35·10	34·93	35·13	34·86	34·73	34·76	34·90	34·73	34·75	34·95	34·81	35·07
1953	December.....	35·01	34·85	34·97	34·87	34·72	34·67	34·85	34·64	34·74	34·79	34·75	34·99
1954	January.....	34·94	34·81	34·96	34·87	34·69	34·67	34·69	34·64	34·69	34·85	34·73	34·97
1954	February.....	34·88	34·79	34·88	34·72	34·74	34·79	34·76	34·67	34·72	34·69	34·73	34·95
1953/4	Summer.....	34·94	34·82	34·94	34·82	34·72	34·71	34·77	34·65	34·72	34·78	34·74	34·97
1954	March.....	34·97	34·85	35·00	34·87	34·72	34·69	34·79	34·65	34·78	34·81	34·76	34·99
1954	April.....	35·05	34·85	35·06	34·83	34·78	34·81	34·87	34·69	34·76	34·78	34·79	35·08
1954	May.....	35·32	35·05	35·15	34·84	34·78	34·79	34·87	34·83	34·78	34·99	34·84	35·09
1954	Autumn.....	35·11	34·92	35·07	34·85	34·76	34·76	34·84	34·72	34·77	34·86	34·80	35·05
1954	June.....	35·17	34·87	35·13	34·81	34·83	34·79	34·99	34·78	34·83	34·96	34·76	35·07
1954	July.....	35·34	35·17	35·24	35·12	34·56	34·88	35·26	34·92	35·23	35·25	35·03	35·19
1954	August.....	35·26	35·21	35·22	35·14	34·96	35·07	35·16	34·52	35·17	35·19	35·03	35·19
1954	Winter.....	35·26	35·08	35·20	35·02	34·78	34·91	35·14	34·74	35·08	35·13	34·97	35·15
1953/4	Comm. Year....	35·10	34·94	35·08	34·89	34·75	34·79	34·91	34·71	34·83	34·93	34·83	35·06

TABLE 5 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VALUES OF 20 METRES SALINITY FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1954	September.....	35·35	35·35	35·35	35·36	35·35	35·35	35·35	35·35	35·32	35·35	35·36	35·35
1954	October.....	35·43	35·34	35·41	35·39	35·46	35·36	35·40	35·30	35·34	35·30	35·35	35·12
1954	November.....	35·39	35·26	35·41	35·19	35·41	35·16	35·30	35·08	34·96	35·43	35·14	35·25
1954	**Spring.....**	**35·39**	**35·32**	**35·39**	**35·31**	**35·41**	**35·29**	**35·35**	**35·24**	**35·21**	**35·36**	**35·28**	**35·24**
1954	December.....	35·37	35·21	35·25	35·35	35·34	35·39	35·32	35·05	35·07	35·39	35·35	35·34
1955	January.....	35·03	35·03	35·19	35·12	35·19	35·39	35·16	34·98	35·01	35·05	34·87	34·87
1955	February.....	35·23	35·18	34·94	34·97	35·25	35·41	35·16	34·88	34·94	34·88	34·70	34·85
1954/5	**Summer.....**	**35·21**	**35·14**	**35·13**	**35·15**	**35·26**	**35·40**	**35·21**	**34·97**	**35·01**	**35·11**	**34·97**	**35·02**
1955	March.....	35·01	35·28	35·19	34·98	34·94	35·07	35·08	34·81	35·19	34·81	34·81	34·79
1955	April.....	35·39	35·12	35·28	35·28	(35·37)	35·46	35·32	35·25	35·30	35·34	35·32	34·97
1955	May.....	35·12	35·08	35·23	35·19	(35·20)	35·21	35·17	35·07	35·05	35·21	34·97	34·97
1955	**Autumn.....**	**35·17**	**35·16**	**35·23**	**35·15**	**(35·17)**	**35·25**	**35·19**	**35·04**	**35·18**	**35·12**	**35·03**	**34·91**
1955	June.....	35·21	35·19	35·17	35·17	(35·18)	35·23	35·19	34·99	34·99	35·07	35·17	34·93
1955	July.....	35·26	35·21	35·25	35·25	(35·22)	35·25	35·24	35·21	35·26	35·07	35·21	35·16
1955	August.....	35·30	35·26	35·21	35·21	(35·24)	35·17	35·23	35·23	35·19	35·19	35·07	35·16
1955	**Winter.....**	**35·26**	**35·22**	**35·21**	**35·21**	**(35·21)**	**35·22**	**35·22**	**35·14**	**35·15**	**35·11**	**35·15**	**35·08**
1954/5	**Comm. Year....**	**35·26**	**35·21**	**35·24**	**35·21**	**(35·26)**	**35·29**	**35·24**	**35·10**	**35·14**	**35·17**	**35·11**	**35·06**
1955	September.....	35·35	35·35	35·32	35·37	(35·37)	35·37	35·35	35·18	35·32	35·34	35·34	35·34
1955	October.....	35·41	35·23	35·30	35·41	(35·41)	35·41	35·36	35·26	35·28	35·41	35·35	35·03
1955	November.....	35·41	35·39	35·19	35·39	(35·40)	35·39	35·36	35·19	35·05	35·34	35·32	35·23
1955	**Spring.....**	**35·39**	**35·32**	**35·27**	**35·39**	**(35·39)**	**35·39**	**35·36**	**35·21**	**35·22**	**35·36**	**35·34**	**35·20**
1955	December.....	35·38	35·40	35·24	35·30	(35·36)	35·44	35·35	34·99	35·25	35·21	35·18	35·07
1956	January.....	35·35	35·37	35·25	35·41	(35·38)	35·36	35·35	35·01	35·30	35·37	34·97	35·10
1956	February.....	35·17	35·05	34·98	35·05	(35·18)	35·07	35·08	34·86	35·05	34·97	34·88	35·14
1955/6	**Summer.....**	**35·30**	**35·27**	**35·16**	**35·25**	**(35·31)**	**35·29**	**35·26**	**34·95**	**35·20**	**35·18**	**35·01**	**35·10**
1956	March.....	35·43	35·14	35·16	35·13	(35·30)	35·36	35·25	35·12	35·03	34·79	35·05	34·86
1956	April.....	35·38	35·05	35·05	35·05	(35·31)	35·25	35·18	34·97	35·12	35·10	35·03	35·05
1956	May.....	35·43	35·41	35·30	35·25	(35·37)	35·23	35·33	35·05	35·39	35·37	35·30	35·34
1956	**Autumn.....**	**35·41**	**35·20**	**35·17**	**35·14**	**(35·33)**	**35·28**	**35·26**	**35·05**	**35·18**	**35·09**	**35·13**	**35·08**
1956	June.....	35·44	35·44	35·37	35·25	(35·36)	35·26	35·35	35·37	35·35	35·26	35·26	35·35
1956	July.....	35·28	35·32	35·30	35·34	(35·35)	35·34	35·32	35·30	35·26	35·34	35·34	35·32
1956	August.....	35·28	35·32	35·37	35·32	(35·33)	35·39	35·33	35·30	35·34	35·28	34·78	35·32
1956	**Winter.....**	**35·33**	**35·36**	**35·35**	**35·30**	**(35·35)**	**35·33**	**35·34**	**35·32**	**35·32**	**35·29**	**35·13**	**35·33**
1955/6	**Comm. Year....**	**35·36**	**35·29**	**35·24**	**35·27**	**(35·34)**	**35·32**	**35·30**	**35·13**	**35·23**	**35·23**	**35·15**	**35·18**

Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1954	September	35·35	35·03	35·30	34·97	34·81	34·81	35·01	34·76	34·81	34·99	34·88	35·17
1954	October	35·01	35·19	35·23	34·99	34·78	34·70	34·97	34·67	34·85	35·19	34·88	35·16
1954	November	34·90	35·03	35·11	34·74	34·69	34·67	34·70	34·69	34·70	34·76	34·71	35·03
1954	**Spring**	**35·09**	**35·08**	**35·21**	**34·90**	**34·76**	**34·73**	**34·89**	**34·71**	**34·79**	**34·98**	**34·82**	**35·12**
1954	December	35·14	34·90	35·18	34·72	34·67	34·67	34·69	34·69	34·70	35·03	34·74	35·07
1955	January	34·90	34·95	34·95	34·76	34·74	34·72	34·78	34·67	34·73	34·74	34·73	34·94
1955	February	34·79	34·76	34·83	34·81	34·78	34·78	34·75	34·72	34·70	34·72	34·75	34·90
1954/5	**Summer**	**34·94**	**34·87**	**34·98**	**34·76**	**34·73**	**34·72**	**34·74**	**34·69**	**34·71**	**34·83**	**34·74**	**34·97**
1955	March	34·81	34·85	34·87	34·79	34·76	34·74	34·79	34·74	34·70	34·76	34·75	34·89
1955	April	35·01	34·92	35·16	34·74	34·75	34·72	34·96	34·69	34·77	34·78	34·77	35·07
1955	May	35·08	34·97	35·05	34·85	34·78	34·76	34·79	34·72	34·79	34·87	34·79	35·00
1955	**Autumn**	**34·97**	**34·91**	**35·02**	**34·79**	**34·76**	**34·74**	**34·85**	**34·72**	**34·75**	**34·80**	**34·77**	**34·99**
1955	June	35·00	34·79	34·99	34·75	34·72	34·76	34·79	34·78	34·83	34·75	34·77	34·97
1955	July	35·21	35·16	35·18	34·76	34·70	34·79	34·85	34·54	34·65	35·23	34·79	35·06
1955	August	35·16	35·04	35·15	35·03	34·79	34·54	34·97	34·56	34·74	34·97	34·80	35·05
1955	**Winter**	**35·12**	**35·00**	**35·11**	**34·85**	**34·74**	**34·70**	**34·87**	**34·63**	**34·74**	**34·98**	**34·79**	**35·03**
1954/5	**Comm. Year**	**35·03**	**34·97**	**35·08**	**34·83**	**34·75**	**34·72**	**34·84**	**34·69**	**34·75**	**34·90**	**34·78**	**35·03**
1955	September	35·35	35·34	35·32	35·07	34·76	34·79	35·25	34·78	35·23	35·12	35·00	35·22
1955	October	35·12	35·21	35·24	35·16	34·67	34·74	35·23	34·72	34·98	35·26	34·97	35·18
1955	November	34·94	34·79	35·12	34·79	34·65	34·70	34·75	34·63	34·69	34·72	34·70	35·05
1955	**Spring**	**35·14**	**35·11**	**35·23**	**35·01**	**34·69**	**34·74**	**35·08**	**34·71**	**34·97**	**35·03**	**34·89**	**35·15**
1955	December	35·18	34·97	35·12	34·71	34·64	34·69	34·98	34·64	34·65	35·03	34·76	35·07
1956	January	35·21	34·74	35·10	34·77	34·72	34·65	34·90	34·61	34·74	34·68	34·72	35·04
1956	February	34·94	34·81	34·95	34·81	34·72	34·68	34·96	34·68	34·69	34·86	34·77	34·93
1955/6	**Summer**	**35·11**	**34·84**	**35·06**	**34·76**	**34·69**	**34·67**	**34·95**	**34·64**	**34·69**	**34·86**	**34·75**	**35·01**
1956	March	34·83	34·87	34·94	34·99	34·70	34·67	34·78	34·66	34·72	34·89	34·77	34·97
1956	April	35·01	34·85	35·02	34·74	34·70	34·69	34·85	34·70	34·67	34·81	34·74	34·97
1956	May	35·23	34·87	35·22	34·87	34·72	34·70	34·72	34·70	35·05	35·16	34·85	35·12
1956	**Autumn**	**35·02**	**34·86**	**35·06**	**34·87**	**34·71**	**34·69**	**34·78**	**34·69**	**34·81**	**34·95**	**34·79**	**35·02**
1956	June	35·28	34·79	35·24	34·89	34·72	34·85	35·06	34·69	34·74	35·05	34·86	35·14
1956	July	35·28	35·07	35·27	34·99	34·81	34·90	34·88	34·72	34·87	35·14	34·90	35·16
1956	August	35·28	35·07	35·20	34·99	34·92	34·81	34·96	34·79	35·03	34·90	34·91	35·14
1956	**Winter**	**35·28**	**34·98**	**35·24**	**34·96**	**34·82**	**34·85**	**34·97**	**34·73**	**34·88**	**35·03**	**34·89**	**35·15**
1955/6	**Comm. Year**	**35·14**	**34·95**	**35·14**	**34·90**	**34·73**	**34·74**	**34·94**	**34·69**	**34·84**	**34·97**	**34·83**	**35·08**

TABLE 5 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VALUES OF 20 METRES SALINITY FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I
1956	September.....	35·39	35·39	35·41	35·43	(35·38)	35·43	35·41	35·25	35·35	35·34	35·39	35·37
1956	October.....	35·41	35·35	35·14	35·35	(35·41)	35·43	35·35	35·10	35·17	35·34	35·12	34·85
1956	November.....	35·44	35·43	35·32	35·37	(35·42)	35·40	35·40	35·05	35·08	35·35	35·32	35·15
1956	**Spring.....**	**35·41**	**35·39**	**35·29**	**35·38**	**(35·40)**	**35·42**	**35·38**	**35·13**	**35·20**	**35·34**	**35·28**	**35·12**
1956	December.....	35·28	35·23	35·21	35·02	(35·25)	35·25	35·21	34·98	34·97	34·98	34·81	35·05
1957	January.....	35·14	34·86	35·03	35·12	(35·28)	35·41	35·14	34·88	34·70	35·21	34·81	34·83
1957	February.....	35·46	35·35	35·30	35·37	(35·45)	35·44	35·39	34·94	35·14	35·32	35·23	34·99
1956/7	**Summer.....**	**35·29**	**35·15**	**35·18**	**35·17**	**(35·33)**	**35·37**	**35·25**	**34·93**	**34·94**	**35·17**	**34·95**	**34·96**
1957	March.....	35·26	35·07	34·92	35·23	(35·20)	35·16	35·14	34·90	34·97	34·92	35·19	34·92
1957	April.....	35·06	35·11	35·12	35·34	(35·25)	35·35	35·21	34·91	35·06	35·10	35·00	34·97
1957	May.....	35·35	35·28	35·35	35·16	(35·32)	35·29	35·29	35·18	35·33	35·30	35·23	35·30
1957	**Autumn.....**	**35·22**	**35·15**	**35·13**	**35·24**	**(35·26)**	**35·27**	**35·21**	**35·00**	**35·12**	**35·11**	**35·14**	**35·06**
1957	June.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	July.....	35·21	35·23	35·19	35·25	(35·25)	35·26	35·23	35·13	35·14	35·19	35·21	35·07
1957	August.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	**Winter.....**	**35·21**	**35·23**	**35·19**	**35·25**	**(35·25)**	**35·26**	**35·23**	**35·13**	**35·14**	**35·19**	**35·21**	**35·07**
1956/7	**Comm. Year....**	**35·28**	**35·23**	**35·20**	**35·26**	**(35·31)**	**35·33**	**35·27**	**35·05**	**35·10**	**35·20**	**35·19**	**35·05**

Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1956	September.....	35·21	35·12	35·29	35·00	34·83	34·87	35·05	34·96	34·83	35·35	34·98	35·22
1956	October.....	34·99	34·94	35·07	34·84	34·70	34·79	34·90	34·69	34·79	34·81	34·79	35·06
1956	November.....	34·83	34·86	35·09	34·76	34·74	34·65	34·71	34·67	34·74	35·03	34·76	35·07
1956	**Spring**.....	**35·01**	**34·97**	**35·15**	**34·87**	**34·76**	**34·77**	**34·89**	**34·77**	**34·79**	**35·06**	**34·84**	**35·11**
1956	December.....	34·91	34·74	34·92	34·75	34·76	34·70	34·67	34·66	34·71	34·82	34·72	34·94
1957	January.....	34·76	34·79	34·85	34·73	34·74	34·70	34·76	34·65	34·74	34·69	34·72	34·89
1957	February.....	34·97	34·85	35·06	34·94	34·69	34·72	34·87	34·70	35·01	34·82	34·82	35·08
1956/7	**Summer**.....	**34·88**	**34·79**	**34·95**	**34·81**	**34·73**	**34·71**	**34·77**	**34·67**	**34·82**	**34·78**	**34·75**	**34·97**
1957	March.....	34·88	34·79	34·94	34·70	34·66	34·67	34·85	34·68	34·79	34·76	34·73	34·93
1957	April.....	34·92	34·80	34·97	34·76	34·74	34·72	35·03	34·70	34·72	34·72	34·77	34·97
1957	May.....	35·27	35·01	35·23	34·90	34·69	34·75	34·79	34·65	34·79	35·25	34·83	35·11
1957	**Autumn**.....	**35·02**	**34·87**	**35·05**	**34·79**	**34·70**	**34·71**	**34·89**	**34·68**	**34·77**	**34·91**	**34·78**	**35·00**
1957	June.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	July.....	35·14	34·99	35·14	34·74	34·69	34·67	34·85	34·59	34·79	34·95	34·75	35·03
1957	August.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	**Winter**.....	**35·14**	**34·99**	**35·14**	**34·74**	**34·69**	**34·67**	**34·85**	**34·59**	**34·79**	**34·95**	**34·75**	**35·03**
1956/7	**Comm. Year**....	**35·01**	**34·91**	**35·07**	**34·80**	**34·72**	**34·71**	**34·85**	**34·68**	**34·79**	**34·93**	**34·78**	**35·03**

TABLE 6.

MONTHLY, SEASONAL AND ANNUAL VALUES OF 0–50 METRES SALINITY FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1950	September.....	35·38	35·37	35·32	35·35	35·39	35·37	35·36	35·21	35·17	35·32	35·32	35·25
1950	October.....	35·37	35·35	35·33	35·42	35·45	35·44	35·39	35·25	35·25	35·30	35·17	35·25
1950	November..	35·27	35·36	35·39	35·31	35·36	35·40	35·35	35·08	35·01	35·29	35·15	34·96
1950	**Spring.....**	**35·34**	**35·36**	**35·35**	**35·36**	**35·40**	**35·40**	**35·37**	**35·18**	**35·14**	**35·30**	**35·21**	**35·15**
1950	December.....	35·35	35·32	35·35	35·31	35·47	35·45	35·37	35·05	35·15	35·35	35·11	35·07
1951	January.....	35·27	35·12	34·93	34·94	35·39	35·18	35·14	34·85	35·03	34·99	34·83	35·02
1951	February.....	35·11	35·07	35·13	34·99	35·15	34·96	35·07	35·03	34·97	35·01	34·87	34·93
1950/1	**Summer.....**	**35·24**	**35·17**	**35·14**	**35·08**	**35·34**	**35·20**	**35·19**	**34·98**	**35·05**	**35·12**	**34·94**	**35·01**
1951	March.....	35·26	35·35	35·12	35·00	35·41	35·19	35·22	34·96	34·93	35·05	34·95	35·01
1951	April.....	35·53	35·54	35·31	34·82	35·57	35·47	35·37	35·08	35·03	35·00	34·90	34·98
1951	May.....	35·48	35·48	35·31	35·33	35·49	35·51	35·43	35·33	35·37	35·37	35·01	35·04
1951	**Autumn.....**	**35·42**	**35·46**	**35·25**	**35·05**	**35·49**	**35·39**	**35·34**	**35·12**	**35·11**	**35·14**	**34·95**	**35·01**
1951	June.....	35·47	35·45	35·54	35·13	35·50	35·44	35·42	35·21	35·19	35·16	34·83	35·22
1951	August.....	35·39	35·36	35·23	35·42	35·48	35·47	35·39	35·25	35·28	35·37	35·35	35·36
1951	**Winter.....**	**35·43**	**35·41**	**35·39**	**35·27**	**35·49**	**35·45**	**35·41**	**35·23**	**35·23**	**35·27**	**35·09**	**35·23**
1950/1	**Comm. Year....**	**35·35**	**35·34**	**35·27**	**35·18**	**35·42**	**35·35**	**35·32**	**35·12**	**35·13**	**35·20**	**35·04**	**35·10**
1951	September.....	35·43	35·44	35·41	35·43	35·43	35·42	35·43	35·24	35·17	35·50	35·43	35·28
1951	October.....	35·39	35·44	35·33	35·37	35·43	35·39	35·39	35·18	35·41	35·41	35·40	35·05
1951	November.....	35·45	35·44	35·24	35·48	35·43	35·44	35·41	35·20	35·21	35·47	35·43	35·13
1951	**Spring.....**	**35·42**	**35·44**	**35·33**	**35·43**	**35·43**	**35·42**	**35·41**	**35·21**	**35·26**	**35·46**	**35·42**	**35·15**
1951	December.....	35·43	35·35	35·21	35·30	35·46	35·47	35·37	35·18	35·43	35·32	35·17	35·26
1952	January.....	35·60	35·52	35·55	35·49	35·31	35·57	35·51	34·98	35·31	35·22	35·27	34·95
1952	February.....	35·16	35·21	35·35	35·19	35·21	35·29	35·23	35·05	35·07	35·18	35·15	35·07
1951/2	**Summer.....**	**35·40**	**35·36**	**35·37**	**35·33**	**35·33**	**35·44**	**35·37**	**35·07**	**35·27**	**35·24**	**35·20**	**35·09**
1952	March.....	35·12	35·14	35·11	35·27	35·39	35·29	35·22	35·02	35·10	34·93	34·93	34·94
1952	April.....	35·07	35·13	35·18	35·45	35·55	35·50	35·31	34·98	35·07	35·05	35·09	34·92
1952	May.....	35·26	35·27	35·29	35·28	35·34	35·20	35·27	35·05	35·02	35·02	35·16	35·01
1952	**Autumn.....**	**35·15**	**35·18**	**35·19**	**35·33**	**35·43**	**35·33**	**35·27**	**35·02**	**35·06**	**35·00**	**35·06**	**34·96**
1952	June.....	35·36	35·35	35·33	35·36	35·39	35·42	35·37	35·22	35·13	35·35	35·13	35·36
1952	July.....	35·39	35·41	35·39	35·31	35·40	35·37	35·38	35·22	35·22	35·14	35·14	35·19
1952	August.....	35·13	35·17	35·24	35·25	35·19	35·28	35·21	35·14	35·20	35·07	35·23	35·04
1952	**Winter.....**	**35·29**	**35·31**	**35·32**	**35·31**	**35·33**	**35·36**	**35·32**	**35·19**	**35·18**	**35·19**	**35·17**	**35·20**
1951/2	**Comm. Year....**	**35·32**	**35·32**	**35·30**	**35·35**	**35·38**	**35·39**	**35·34**	**35·12**	**35·19**	**35·22**	**35·21**	**35·10**

Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1950	September.....	35·24	35·24	35·25	34·93	34·83	34·89	35·07	—	34·96	35·01	34·95	35·19
1950	October.....	35·27	35·11	35·23	34·99	34·81	34·85	35·13	—	34·93	35·01	34·95	35·19
1950	November.....	35·07	34·87	35·06	34·73	34·63	34·67	34·85	—	34·71	34·87	34·74	35·05
1950	**Spring.....**	**35·19**	**35·07**	**35·18**	**34·88**	**34·76**	**34·80**	**35·02**	—	**34·87**	**34·96**	**34·88**	**35·15**
1950	December.....	35·03	35·04	35·11	34·80	34·72	34·69	35·01	—	34·77	34·97	34·83	35·11
1951	January.....	34·88	34·79	34·91	34·80	34·69	34·65	34·74	—	34·69	34·73	34·71	34·92
1951	February.....	34·89	34·81	34·93	34·77	34·76	34·73	34·71	—	34·69	34·73	34·73	34·91
1950/1	**Summer.....**	**34·93**	**34·88**	**34·99**	**34·79**	**34·72**	**34·69**	**34·82**	—	**34·72**	**34·81**	**34·76**	**34·98**
1951	March.....	34·85	34·81	34·94	34·73	34·71	34·73	34·75	—	34·72	34·71	34·73	34·96
1951	April.....	34·88	34·78	34·95	34·74	34·71	34·72	34·71	—	34·69	34·72	34·71	35·01
1951	May.....	35·21	34·83	35·17	34·79	34·72	34·75	34·84	—	34·81	35·06	34·83	35·13
1951	**Autumn.....**	**34·98**	**34·81**	**35·02**	**34·75**	**34·71**	**34·73**	**34·77**	—	**34·74**	**34·83**	**34·76**	**35·04**
1951	June.....	35·09	34·86	35·08	34·71	34·77	34·78	34·72	—	34·68	34·84	34·75	35·08
1951	August.....	35·32	35·10	35·29	35·04	34·88	34·85	34·95	—	34·78	35·22	34·95	35·22
1951	**Winter.....**	**35·21**	**34·98**	**35·19**	**34·87**	**34·83**	**34·81**	**34·83**	—	**34·73**	**35·03**	**34·85**	**35·15**
1950/1	**Comm. Year....**	**35·07**	**34·93**	**35·08**	**34·82**	**34·75**	**34·76**	**34·86**	—	**34·77**	**34·90**	**34·81**	**35·07**
1951	September.....	35·05	35·00	35·24	34·81	34·76	34·91	35·10	—	34·97	34·99	34·92	35·20
1951	October.....	35·28	35·34	35·30	35·06	34·78	34·76	34·97	—	34·76	35·08	34·90	35·20
1951	November.....	35·17	35·06	35·24	34·83	34·71	34·75	34·91	—	34·85	34·86	34·82	35·16
1951	**Spring.....**	**35·17**	**35·13**	**35·26**	**34·90**	**34·75**	**34·81**	**34·99**	—	**34·86**	**34·98**	**34·88**	**35·19**
1951	December.....	35·34	34·99	35·24	34·84	34·72	34·72	34·77	—	34·73	35·19	34·83	35·15
1952	January.....	35·15	35·03	35·13	34·88	34·70	34·72	35·04	—	34·88	34·79	34·83	35·16
1952	February.....	35·00	34·91	35·06	34·79	34·79	34·74	34·91	—	34·78	34·72	34·79	35·03
1951/2	**Summer.....**	**35·16**	**34·98**	**35·14**	**34·84**	**34·74**	**34·73**	**34·91**	—	**34·80**	**34·90**	**34·82**	**35·11**
1952	March.....	34·98	34·96	34·98	34·78	34·74	34·76	34·94	—	34·89	34·79	34·82	35·00
1952	April.....	34·84	34·89	34·98	34·75	34·73	34·71	34·82	—	34·72	34·82	34·76	35·01
1952	May.....	35·07	34·84	35·02	34·74	34·73	34·74	34·87	—	34·95	34·74	34·79	35·03
1952	**Autumn.....**	**34·96**	**34·90**	**34·99**	**34·76**	**34·73**	**34·74**	**34·88**	—	**34·85**	**34·78**	**34·79**	**35·02**
1952	June.....	35·20	35·07	35·21	34·82	34·76	34·78	34·83	—	34·90	35·01	34·85	35·15
1952	July.....	35·21	34·95	35·15	34·74	34·74	34·75	34·91	—	34·77	35·06	34·83	35·12
1952	August.....	35·03	34·80	35·07	34·86	34·75	34·74	34·82	—	34·77	35·03	34·83	35·04
1952	**Winter.....**	**35·15**	**34·94**	**35·14**	**34·81**	**34·75**	**34·76**	**34·85**	—	**34·81**	**35·03**	**34·84**	**35·10**
1951/2	**Comm. Year....**	**35·11**	**34·99**	**35·14**	**34·82**	**34·74**	**34·76**	**34·91**	—	**34·83**	**34·92**	**34·83**	**35·10**

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TABLE 6 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VALUES OF 0–50 METRES SALINITY FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1952	September.....	35·33	35·26	35·33	35·29	35·27	35·29	35·29	35·26	35·19	35·24	35·27	35·25
1952	October.....	35·31	35·25	35·28	35·35	35·35	35·36	35·31	35·19	35·23	35·20	35·25	35·25
1952	November.....	35·44	35·41	35·40	35·21	35·39	35·33	35·36	35·11	35·09	35·14	35·15	35·15
1952	**Spring.....**	**35·36**	**35·31**	**35·34**	**35·28**	**35·34**	**35·33**	**35·33**	**35·19**	**35·17**	**35·19**	**35·22**	**35·22**
1952	December.....	35·26	35·05	35·16	35·16	35·27	35·19	35·18	35·01	34·97	34·93	34·86	35·02
1953	January.....	35·25	35·19	35·18	35·16	35·21	35·39	35·23	34·95	34·96	35·11	35·01	35·06
1953	February.....	35·17	35·19	35·07	35·19	35·09	35·21	35·15	34·87	35·04	34·93	35·07	34·92
1952/3	**Summer.....**	**35·23**	**35·14**	**35·14**	**35·17**	**35·19**	**35·26**	**35·19**	**34·94**	**34·99**	**34·99**	**34·98**	**35·00**
1953	March.....	35·07	35·18	35·13	34·93	34·89	35·23	35·07	34·90	35·01	35·02	34·91	34·91
1953	April.....	35·15	35·15	35·25	34·98	35·08	34·99	35·10	34·96	35·05	35·10	34·86	35·01
1953	May.....	35·33	35·31	35·09	35·32	35·34	35·34	35·29	35·01	35·18	34·99	35·23	35·17
1953	**Autumn.....**	**35·18**	**35·21**	**35·16**	**35·08**	**35·10**	**35·19**	**35·15**	**34·96**	**35·08**	**35·04**	**35·00**	**35·03**
1953	June.....	35·14	35·14	35·30	35·25	35·35	35·34	35·25	35·16	35·16	34·98	34·96	34·99
1953	July.....	35·41	35·39	35·34	35·33	35·35	35·36	35·36	35·03	35·35	35·35	35·31	35·13
1953	August.....	35·28	35·25	35·28	35·31	35·34	35·34	35·30	35·14	35·15	35·27	35·18	35·11
1953	**Winter.....**	**35·28**	**35·26**	**35·31**	**35·30**	**35·35**	**35·35**	**35·31**	**35·11**	**35·22**	**35·20**	**35·15**	**35·08**
1952/3	**Comm. Year....**	**35·26**	**35·23**	**35·23**	**35·21**	**35·24**	**35·28**	**35·24**	**35·05**	**35·11**	**35·11**	**35·09**	**35·08**
1953	September.....	35·37	35·37	35·12	35·17	35·35	35·30	35·28	35·18	35·21	35·22	35·20	35·30
1953	October.....	35·32	35·30	35·12	35·35	35·34	35·39	35·30	35·00	35·37	35·40	35·29	35·12
1953	November.....	35·14	35·37	35·27	35·35	35·36	35·44	35·32	35·04	35·05	35·13	35·05	34·98
1953	**Spring.....**	**35·28**	**35·35**	**35·17**	**35·29**	**35·35**	**35·38**	**35·30**	**35·07**	**35·21**	**35·25**	**35·18**	**35·13**
1953	December.....	35·14	35·27	35·31	35·25	35·35	35·32	35·27	35·05	34·95	34·99	34·97	34·91
1954	January.....	35·32	35·27	35·21	35·11	35·36	35·29	35·26	35·08	35·00	35·09	34·95	34·95
1954	February.....	35·08	35·34	35·25	35·35	35·39	35·40	35·30	34·91	34·82	35·14	34·72	34·96
1953/4	**Summer.....**	**35·18**	**35·29**	**35·26**	**35·24**	**35·37**	**35·34**	**35·28**	**35·01**	**34·92**	**35·07**	**34·88**	**34·94**
1954	March.....	35·05	35·13	35·17	35·18	35·34	35·33	35·20	35·11	35·09	34·94	34·99	34·96
1954	April.....	35·54	35·27	35·19	35·32	35·54	35·54	35·40	35·12	35·04	35·15	34·95	35·09
1954	May.....	35·45	35·42	35·10	35·28	35·37	35·20	35·30	35·08	35·23	34·98	35·02	35·15
1954	**Autumn.....**	**35·35**	**35·27**	**35·15**	**35·26**	**35·42**	**35·36**	**35·30**	**35·10**	**35·12**	**35·02**	**34·99**	**35·07**
1954	June.....	35·26	35·13	35·21	35·29	35·35	35·23	35·25	35·00	35·08	35·30	35·22	35·22
1954	July.....	35·29	35·26	35·30	35·35	35·35	35·35	35·32	35·22	35·23	35·24	35·29	35·21
1954	August.....	35·32	35·39	35·27	35·30	35·32	35·34	35·32	35·15	35·15	35·28	35·27	35·26
1954	**Winter.....**	**35·29**	**35·26**	**35·26**	**35·31**	**35·34**	**35·31**	**35·30**	**35·12**	**35·15**	**35·27**	**35·26**	**35·23**
1953/4	**Comm. Year....**	**35·27**	**35·29**	**35·21**	**35·27**	**35·37**	**35·34**	**35·29**	**35·08**	**35·10**	**35·15**	**35·08**	**35·09**

Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1952	September.....	35·08	34·96	35·18	34·94	34·82	34·83	35·02	—	34·97	35·16	34·96	35·15
1952	October.....	35·21	35·22	35·22	34·99	34·73	34·72	35·00	—	34·93	35·19	34·93	35·16
1952	November.....	35·09	34·91	35·09	34·84	34·73	34·72	34·91	—	34·78	34·89	34·81	35·09
1952	**Spring.....**	**35·13**	**35·03**	**35·16**	**34·92**	**34·76**	**34·76**	**34·98**	—	**34·89**	**35·08**	**34·90**	**35·13**
1952	December.....	34·92	34·77	34·93	34·75	34·72	34·70	34·77	—	34·73	34·83	34·75	34·95
1953	January.....	34·94	34·90	34·99	34·77	34·68	34·67	34·92	—	34·71	34·92	34·78	35·00
1953	February.....	34·91	34·78	34·93	34·76	34·74	34·72	34·72	—	34·69	34·87	34·75	34·94
1952/3	**Summer.....**	**34·92**	**34·82**	**34·95**	**34·76**	**34·71**	**34·70**	**34·80**	—	**34·71**	**34·87**	**34·76**	**34·96**
1953	March.....	34·91	34·84	34·93	34·80	34·77	34·72	34·77	—	34·76	34·77	34·77	34·92
1953	April.....	34·87	34·75	34·94	34·78	34·77	34·73	34·81	—	34·75	34·73	34·76	34·94
1953	May.....	34·93	34·88	35·06	34·81	34·79	34·79	34·82	—	34·78	34·88	34·81	35·05
1953	**Autumn.....**	**34·90**	**34·82**	**34·98**	**34·80**	**34·78**	**34·75**	**34·80**	—	**34·76**	**34·79**	**34·73**	**34·97**
1953	June.....	35·06	34·92	35·03	34·76	34·72	34·71	34·99	—	34·76	34·88	34·80	35·03
1953	July.....	35·05	35·10	35·19	34·83	34·78	34·80	35·10	—	34·91	35·08	34·92	35·16
1953	August.....	35·23	35·21	35·18	34·88	34·80	34·91	34·86	—	34·82	34·69	34·83	35·11
1953	**Winter.....**	**35·11**	**35·08**	**35·14**	**34·82**	**34·77**	**34·81**	**34·98**	—	**34·83**	**34·88**	**34·85**	**35·10**
1952/3	**Comm. Year**	**35·02**	**34·94**	**35·06**	**34·83**	**34·75**	**34·75**	**34·89**	—	**34·80**	**34·91**	**34·82**	**35·04**
1953	September....	35·09	34·96	35·17	34·85	34·83	34·84	35·13	—	34·91	35·12	34·95	35·13
1953	October.....	35·06	34·85	35·16	34·77	34·66	34·70	34·74	—	34·65	34·85	34·73	35·07
1953	November.....	35·13	34·95	35·05	34·87	34·70	34·67	34·86	—	34·76	34·89	34·79	35·05
1953	**Spring.....**	**35·09**	**34·92**	**35·12**	**34·83**	**34·73**	**34·74**	**34·91**	—	**34·77**	**34·95**	**34·82**	**35·03**
1953	December.....	35·04	34·87	34·97	34·83	34·71	34·65	34·83	—	34·77	34·81	34·77	35·00
1954	January.....	34·93	34·84	34·98	34·80	34·67	34·68	34·69	—	34·68	34·79	34·72	34·98
1954	February.....	34·89	34·85	34·90	34·75	34·74	34·74	34·73	—	34·70	34·69	34·73	34·97
1953/4	**Summer.....**	**34·95**	**34·85**	**34·95**	**34·79**	**34·71**	**34·69**	**34·75**	—	**34·72**	**34·76**	**34·74**	**34·99**
1954	March.....	34·92	34·85	34·98	34·80	34·73	34·71	34·77	—	34·74	34·79	34·76	34·93
1954	April.....	35·01	34·85	35·03	34·81	34·78	34·77	34·83	—	34·76	34·79	34·79	35·07
1954	May.....	35·23	34·95	35·09	34·77	34·79	34·79	34·83	—	34·79	34·87	34·81	35·07
1954	**Autumn.....**	**35·05**	**34·88**	**35·03**	**34·79**	**34·77**	**34·76**	**34·81**	—	**34·76**	**34·82**	**34·78**	**35·04**
1954	June.....	35·16	34·87	35·12	34·82	34·81	34·81	35·00	—	34·85	34·97	34·88	35·08
1954	July.....	35·34	35·17	35·24	35·06	34·63	34·88	35·25	—	35·20	35·25	35·05	35·20
1954	August.....	35·27	35·21	35·23	35·11	34·94	34·96	35·09	—	35·17	35·19	35·08	35·21
1954	**Winter.....**	**35·26**	**35·08**	**35·20**	**35·00**	**34·79**	**34·88**	**35·11**	—	**35·07**	**35·14**	**35·00**	**35·17**
1953/4	**Comm. Year....**	**35·09**	**34·93**	**35·07**	**34·85**	**34·75**	**34·77**	**34·90**	—	**34·83**	**34·92**	**34·84**	**35·07**

TABLE 6 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VALUES OF 0–50 METRES SALINITY FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1954	September.....	35·35	35·35	35·35	35·36	35·35	35·35	35·35	35·35	35·32	35·35	35·36	35·35
1954	October.....	35·43	35·34	35·40	35·40	35·46	35·46	35·41	35·29	35·34	35·31	35·35	35·14
1954	November.....	35·39	35·26	35·42	35·18	35·36	35·17	35·30	35·09	35·03	35·41	35·12	35·23
1954	**Spring.....**	**35·39**	**35·32**	**35·39**	**35·31**	**35·39**	**35·33**	**35·35**	**35·24**	**35·23**	**35·36**	**35·28**	**35 24**
1954	December.....	35·34	35·23	35·25	35·32	35·33	35·32	35·30	35·04	35·06	35·36	35·30	35·29
1955	January.....	35·03	35·06	35·21	35·17	35·19	35·38	35·17	34·97	35·04	35·04	34·86	34·95
1955	February.....	35·23	35·19	34·92	35·08	35·17	35·35	35·16	34·89	34·94	34·92	34·76	34·93
1954/5	**Summer.....**	**35·20**	**35·16**	**35·13**	**35·19**	**35·23**	**35·35**	**35·21**	**34·97**	**35·01**	**35·11**	**34·97**	**35·06**
1955	March.....	35·03	35·19	35·08	35·04	34·98	35·08	35·07	34·87	35·04	34·87	34·83	34·87
1955	April.....	35·36	35·06	35·23	35·25	(35·33)	35·33	35·26	35·20	35·20	35·24	35·25	34·91
1955	May.....	35·08	35·08	35·16	35·13	(35·16)	35·19	35·13	35·06	35·07	35·13	34·92	35·01
1955	**Autumn.....**	**35·16**	**35·11**	**35·16**	**35·14**	**(35·16)**	**35·20**	**35·15**	**35·04**	**35·10**	**35·08**	**35·00**	**34·93**
1955	June.....	35·20	35·17	35·16	35·14	(35·17)	35·22	35·18	34·99	34·97	35·03	35·13	34·91
1955	July.....	35·26	35·21	35·25	35·25	(35·21)	35·25	35·24	35·21	35·26	35·05	35·17	35·09
1955	August.....	35·30	35·25	35·21	35·21	(35·25)	35·17	35·23	35·22	35·19	35·19	35·09	35·15
1955	**Winter.....**	**35·25**	**35·21**	**35·21**	**35·20**	**(35·21)**	**35·21**	**35·22**	**35·14**	**35·14**	**35·09**	**35·13**	**35·05**
1954/5	**Comm. Year....**	**35·25**	**35·20**	**35·22**	**35·21**	**(35·25)**	**35·27**	**35·23**	**35·10**	**35·12**	**35·16**	**35·09**	**35·07**
1955	September.....	35·35	35·35	35·31	35·37	(35·36)	35·37	35·35	35·18	35·32	35·33	35·34	35·34
1955	October.....	35·41	35·22	35·29	35·40	(35·41)	35·41	35·36	35·22	35·29	35·36	35·34	35·00
1955	November.....	35·41	35·40	35·18	35·39	(35·39)	35·39	35·36	35·14	35·08	35·34	35·31	35·22
1955	**Spring.....**	**35·39**	**35·32**	**35·26**	**35·39**	**(35·39)**	**35·39**	**35·36**	**35·18**	**35·23**	**35·34**	**35·33**	**35·19**
1955	December.....	35·38	35·39	35·23	35·27	(35·40)	35·42	35·35	35·00	35·23	35·23	35·04	35·07
1956	January.....	35·30	35·34	35·23	35·37	(35·37)	35·34	35·33	34·99	35·25	35·37	34·95	35·07
1956	February.....	35·16	35·08	34·97	34·92	(35·15)	34·94	35·04	34·89	35·05	34·95	34·90	35·15
1955/6	**Summer.....**	**35·28**	**35·27**	**35·14**	**35·19**	**(35·31)**	**35·23**	**35·24**	**34·96**	**35·18**	**35·18**	**34·96**	**35·10**
1956	March.....	35·38	35·12	35·10	35·15	(35·27)	35·30	35·22	35·12	35·01	34·90	34·98	34·85
1956	April.....	35·33	34·97	35·05	35·05	(35·21)	35·13	35·12	34·95	35·10	35·07	35·01	35·03
1956	May.....	35·43	35·39	35·25	35·12	(35·31)	35·17	35·28	35·06	35·36	35·32	35·17	35·27
1956	**Autumn.....**	**35·38**	**35·16**	**35·13**	**35·11**	**(35·26)**	**35·20**	**35·21**	**35·04**	**35·16**	**35·10**	**35·05**	**35·05**
1956	June.....	35·41	35·43	35·37	35·20	(35·32)	35·28	35·33	35·36	35·30	35·20	35·21	35·33
1956	July.....	35·26	35·30	35·30	35·32	(35·35)	35·33	35·31	35·29	35·21	35·33	35·32	35·29
1956	August.....	35·28	35·31	35·37	35·27	(35·32)	35·35	35·32	35·28	35·34	35·27	34·79	35·30
1956	**Winter.....**	**35·32**	**35·35**	**35·35**	**35·26**	**(35·33)**	**35·32**	**35·32**	**35·31**	**35·28**	**35·27**	**35·11**	**35·31**
1955/6	**Comm. Year....**	**35·34**	**35·27**	**35·22**	**35·24**	**(35·32)**	**35·29**	**35·28**	**35·12**	**35·21**	**35·22**	**35·11**	**35·16**

Individual Stations and Sub-areas, September, 1950–August, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1954	September.....	35·33	35·00	35·29	34·95	34·77	34·77	35·01	—	34·83	34·97	34·88	35·18
1954	October.....	34·96	35·07	35·21	34·93	34·72	34·69	34·95	—	34·80	35·17	34·88	35·17
1954	November.....	34·94	34·94	35·11	34·72	34·69	34·66	34·72	—	34·69	34·75	34·71	35·04
1954	**Spring**.....	**35·08**	**35·00**	**35·20**	**34·87**	**34·73**	**34·71**	**34·89**	—	**34·77**	**34·96**	**34·82**	**35·13**
1954	December.....	35·13	34·79	35·14	34·71	34·66	34·69	34·70	—	34·70	34·96	34·74	35·06
1955	January.....	34·92	34·92	34·96	34·74	34·71	34·71	34·82	—	34·72	34·71	34·73	34·96
1955	February.....	34·89	34·80	34·88	34·75	34·75	34·77	34·77	—	34·70	34·69	34·74	34·92
1954/5	**Summer**.....	**34·98**	**34·84**	**34·99**	**34·73**	**34·71**	**34·72**	**34·76**	—	**34·71**	**34·79**	**34·74**	**34·98**
1955	March.....	34·86	34·86	34·89	34·77	34·76	34·75	34·77	—	34·72	34·75	34·75	34·90
1955	April.....	34·96	34·89	35·09	34·77	34·75	34·72	34·93	—	34·85	34·77	34·80	35·05
1955	May.....	35·04	34·89	35·02	34·83	34·79	34·76	34·83	—	34·77	34·85	34·81	34·99
1955	**Autumn**.....	**34·95**	**34·88**	**35·00**	**34·79**	**34·77**	**34·74**	**34·84**	—	**34·78**	**34·79**	**34·79**	**34·98**
1955	June.....	34·96	34·79	34·97	34·75	34·73	34·75	34·78	—	34·78	34·74	34·75	34·97
1955	July.....	35·19	35·12	35·16	34·75	34·71	34·79	34·82	—	34·67	35·18	34·82	35·08
1955	August.....	35·13	35·01	35·14	34·95	34·77	34·61	34·89	—	34·76	34·97	34·83	35·07
1955	**Winter**.....	**35·09**	**34·97**	**35·09**	**34·82**	**34·74**	**34·72**	**34·83**	—	**34·74**	**34·96**	**34·80**	**35·04**
1954/5	**Comm. Year**....	**35·03**	**34·92**	**35·07**	**34·80**	**34·73**	**34·72**	**34·83**	—	**34·75**	**34·88**	**34·79**	**35·03**
1955	September.....	35·35	35·32	35·31	34·94	34·75	34·76	35·17	—	35·12	35·10	34·97	35·22
1955	October.....	35·08	35·16	35·21	35·08	34·67	34·73	35·15	—	34·94	35·19	34·96	35·18
1955	November.....	34·99	34·74	35·12	34·74	34·64	34·69	34·75	—	34·69	34·74	34·71	35·06
1955	**Spring**.....	**35·14**	**35·07**	**35·21**	**34·92**	**34·69**	**34·73**	**35·02**	—	**34·92**	**35·01**	**34·88**	**35·15**
1955	December.....	35·16	34·88	35·09	34·69	34·64	34·67	34·86	—	34·66	34·94	34·74	35·06
1956	January.....	35·11	34·80	35·08	34·73	34·71	34·65	34·81	—	34·73	34·68	34·72	35·04
1956	February.....	34·94	34·82	34·96	34·78	34·72	34·67	34·87	—	34·69	34·78	34·75	34·92
1955/6	**Summer**.....	**35·07**	**34·83**	**35·04**	**34·73**	**34·69**	**34·66**	**34·85**	—	**34·69**	**34·80**	**34·74**	**35·01**
1956	March.....	34·88	34·83	34·94	34·81	34·70	34·69	34·71	—	34·69	34·87	34·75	34·97
1956	April.....	34·97	34·87	35·00	34·69	34·70	34·68	34·79	—	34·67	34·80	34·72	34·95
1956	May.....	35·20	34·88	35·18	34·85	34·70	34·68	34·70	—	35·00	35·02	34·82	35·10
1956	**Autumn**.....	**35·02**	**34·86**	**35·04**	**34·78**	**34·70**	**34·68**	**34·73**	—	**34·79**	**34·90**	**34·76**	**35·01**
1956	June.....	35·25	34·84	35·21	34·88	34·72	34·85	35·06	—	34·79	34·97	34·88	35·15
1956	July.....	35·26	35·04	35·27	34·97	34·78	34·90	34·88	—	34·84	35·13	34·92	35·16
1956	August.....	35·25	35·00	35·18	34·91	34·90	34·80	34·93	—	34·89	34·91	34·89	35·13
1956	**Winter**.....	**35·25**	**34·96**	**35·21**	**34·92**	**34·80**	**34·85**	**34·96**	—	**34·84**	**35·00**	**34·89**	**35·15**
1955/6	**Comm. Year**....	**35·12**	**34·93**	**35·13**	**34·84**	**34·72**	**34·73**	**34·89**	—	**34·81**	**34·93**	**34·82**	**35·08**

TABLE 6 (*continued*).

MONTHLY, SEASONAL AND ANNUAL VALUES OF 0–50 METRES SALINITY FOR

Year.	Month/Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1956	September.....	35·39	35·39	35·42	35·43	(35·40)	35·43	**35·41**	35·25	35·35	35·33	35·39	35·38
1956	October.....	35·41	35·35	35·13	35·35	(35·42)	35·43	**35·35**	35·10	35·17	35·34	35·12	34·88
1956	November.....	35·41	35·41	35·32	35·36	(35·40)	35·39	**35·38**	35·03	35·03	35·36	35·31	35·16
1956	**Spring.....**	**35·40**	**35·38**	**35·29**	**35·38**	**(35·41)**	**35·42**	**35·38**	**35·13**	**35·18**	**35·34**	**35·27**	**35·14**
1956	December.....	35·30	35·17	35·17	35·04	(35·25)	35·24	**35·19**	34·98	34·97	35·00	34·79	34·99
1957	January.....	35·19	34·87	35·08	35·14	(35·30)	35·37	**35·16**	34·90	34·73	35·08	34·86	34·82
1957	February.....	35·43	35·34	35·26	35·34	(35·42)	35·41	**35·37**	34·96	35·14	35·29	35·14	34·94
1956/7	**Summer.....**	**35·31**	**35·13**	**35·17**	**35·17**	**(35·32)**	**35·34**	**35·24**	**34·95**	**34·95**	**35·12**	**34·93**	**34·92**
1957	March.....	35·26	35·11	34·93	35·16	(35·17)	35·16	**35·13**	34·90	34·99	34·94	35·03	34·90
1957	April.....	35·02	35·10	35·25	35·21	(35·24)	35·33	**35·19**	34·91	35·06	35·09	35·06	34·94
1957	May.....	35·33	35·25	35·33	35·08	(35·32)	35·29	**35·27**	35·14	35·29	35·29	35·11	35·24
1957	**Autumn.....**	**35·20**	**35·15**	**35·17**	**35·15**	**(35·24)**	**35·26**	**35·20**	**34·98**	**35·11**	**35·11**	**35·07**	**35·03**
1957	June.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	July.....	35·21	35·21	35·19	35·24	(35·24)	35·23	**35·22**	35·13	35·12	35·19	35·11	35·06
1957	August.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	**Winter.....**	**35·21**	**35·21**	**35·19**	**35·24**	**(35·24)**	**35·23**	**35·22**	**35·13**	**35·12**	**35·19**	**35·11**	**35·06**
1956/7	**Comm. Year....**	**35·28**	**35·22**	**35·21**	**35·23**	**(35·30)**	**35·31**	**35·26**	**35·05**	**35·09**	**35·19**	**35·09**	**35·04**

INDIVIDUAL STATIONS AND SUB-AREAS, SEPTEMBER, 1950–AUGUST, 1957.

Year.	Month/Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1956	September.....	35·23	35·05	35·28	34·93	34·81	34·84	34·95	—	34·86	35·35	34·96	35·22
1956	October.....	34·98	34·93	35·07	34·77	34·69	34·76	34·86	—	34·80	34·78	34·78	35·07
1956	November.....	34·89	34·86	35·09	34·75	34·72	34·65	34·73	—	34·73	34·87	34·74	35·07
1956	**Spring.....**	**35·03**	**34·95**	**35·15**	**34·82**	**34·74**	**34·75**	**34·85**	—	**34·80**	**35·00**	**34·83**	**35·12**
1956	December.....	34·91	34·76	34·91	34·74	34·73	34·69	34·70	—	34·69	34·79	34·72	34·94
1957	January.....	34·78	34·80	34·85	34·73	34·72	34·69	34·75	—	34·68	34·70	34·71	34·90
1957	February.....	35·02	34·84	35·05	34·84	34·69	34·69	34·87	—	34·86	34·79	34·79	35·07
1956/7	**Summer.....**	**34·90**	**34·80**	**34·94**	**34·77**	**34·71**	**34·69**	**34·77**	—	**34·74**	**34·76**	**34·74**	**34·97**
1957	March.....	34·90	34·79	34·92	34·70	34·67	34·67	34·82	—	34·76	34·71	34·72	34·92
1957	April.....	34·90	34·78	34·96	34·74	34·72	34·72	34·93	—	34·75	34·70	34·76	34·97
1957	May.....	35·21	34·97	35·18	34·84	34·71	34·72	34·77	—	34·72	35·18	34·82	35·09
1957	**Autumn.....**	**35·00**	**34·85**	**35·02**	**34·76**	**34·70**	**34·70**	**34·84**	—	**34·74**	**34·86**	**34·77**	**35·00**
1957	June.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	July.....	35·13	34·97	35·10	34·74	34·70	34·67	34·84	—	34·74	34·90	34·76	35·03
1957	August.....	—	—	—	—	—	—	—	—	—	—	—	—
1957	**Winter.....**	**35·13**	**34·97**	**35·10**	**34·74**	**34·70**	**34·67**	**34·84**	—	**34·74**	**34·90**	**34·76**	**35·03**
1956/7	**Comm. Year....**	**35·01**	**34·89**	**35·05**	**34·77**	**34·71**	**34·70**	**34·82**	—	**34·75**	**34·88**	**34·77**	**35·03**

(ANNEXURE).

TABLE 7.—SEASONAL VARIATIONS OF SURFACE

Year.	Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1950	Spring.....	16·67	16·47	16·53	16·56	17·15	17·11	16·75	15·92	15·86	16·43	15·31	15·18
1950/1	Summer.....	17·44	17·10	17·68	15·93	18·05	17·41	17·27	16·89	16·55	16·75	14·38	15·43
1951	Autumn.....	19·08	19·05	17·64	16·66	19·50	18·86	18·47	16·16	16·01	16·61	15·37	16·17
1951	Winter.....	16·69	16·65	16·20	15·85	16·65	16·39	16·41	14·97	15·14	15·27	14·43	15·13
1950/1	**Comm. Year....**	**17·54**	**17·38**	**17·09**	**16·29**	**17·95**	**17·54**	**17·30**	**16·07**	**15·96**	**16·35**	**14·91**	**15·51**
1951	Spring.....	15·31	15·60	14·89	15·27	15·32	15·48	15·31	14·48	14·66	15·38	15·51	14·28
1951/2	Summer.....	18·91	18·45	18·72	18·49	18·44	19·21	18·70	16·99	18·17	17·54	18·30	16·09
1952	Autumn.....	17·32	18·08	17·80	18·63	18·86	18·23	18·16	16·01	16·49	15·84	16·31	15·70
1952	Winter.....	16·59	16·17	15·82	16·12	16·61	16·53	16·31	15·32	14·90	15·85	15·31	15·80
1951/2	**Comm. Year....**	**17·04**	**17·08**	**16·81**	**17·13**	**17·31**	**17·36**	**17·12**	**15·70**	**16·06**	**16·15**	**16·36**	**15·47**
1952	Spring.....	16·74	16·31	16·49	16·44	16·30	16·15	16·41	15·92	16·01	16·44	16·40	16·33
1952/3	Summer.....	18·10	17·63	18·31	17·52	18·38	18·33	18·04	15·75	15·83	16·18	15·95	15·92
1953	Autumn.....	17·13	17·61	17·29	16·95	16·66	17·18	17·14	16·12	17·02	16·75	15·92	16·25
1953	Winter.....	15·01	14·93	14·97	15·27	15·47	15·45	15·18	14·24	14·62	14·82	14·91	14·21
1952/3	**Comm. Year....**	**16·75**	**16·62**	**16·76**	**16·55**	**16·70**	**16·78**	**16·69**	**15·51**	**15·87**	**16·05**	**15·79**	**15·67**
1953	Spring.....	15·90	16·50	15·31	16·18	16·63	16·82	16·22	14·53	15·60	15·77	15·33	14·75
1953/4	Summer.....	18·48	17·75	17·85	17·02	19·03	18·43	18·09	17·20	16·72	16·08	13·92	15·11
1954	Autumn.....	18·18	18·37	17·43	17·23	18·23	18·36	17·97	16·44	16·91	16·35	15·18	16·87
1954	Winter.....	15·12	14·96	15·07	15·33	15·53	15·40	15·23	14·35	14·25	15·01	14·79	14·77
1953/4	**Comm. Year....**	**16·92**	**16·89**	**16·41**	**16·44**	**17·35**	**17·25**	**16·88**	**15·63**	**15·87**	**15·80**	**14·81**	**15·38**
1954	Spring.....	16·11	15·64	16·07	15·36	16·01	15·56	15·79	15·27	14·83	15·79	15·13	14·91
1954/5	Summer.....	16·23	16·47	16·46	17·52	17·01	18·64	17·05	15·63	16·05	15·62	14·87	15·42
1955	Autumn.....	16·91	16·89	16·66	16·15	16·92	16·39	16·65	16·05	16·47	16·41	14·85	14·64
1955	Winter.....	15·16	14·99	14·65	14·77	14·95	14·76	14·88	14·14	14·38	13·99	14·60	13·95
1954/5	**Comm. Year....**	**16·10**	**16·00**	**15·96**	**15·95**	**16·22**	**16·34**	**16·09**	**15·27**	**15·43**	**15·45**	**14·86**	**14·73**
1955	Spring.....	15·43	15·49	15·12	15·36	15·52	15·55	15·43	15·08	15·27	15·56	15·14	14·81
1955/6	Summer.....	17·70	17·60	16·82	17·00	17·90	18·11	17·52	14·86	17·16	17·27	15·41	16·19
1956	Autumn.....	18·16	16·60	16·20	16·35	17·33	17·08	16·95	14·53	16·33	16·23	15·65	15·52
1956	Winter.....	15·83	15·72	15·44	14·97	15·92	16·00	15·64	15·40	15·40	15·07	14·12	15·20
1955/6	**Comm. Year....**	**16·78**	**16·35**	**15·90**	**15·92**	**16·67**	**16·69**	**16·38**	**14·97**	**16·04**	**16·03**	**15·08**	**15·43**
1956	Spring.....	16·34	16·44	15·59	16·01	16·32	16·39	16·18	14·95	15·34	15·94	15·23	14·77
1956/7	Summer.....	19·20	19·07	18·24	17·73	19·57	19·65	18·91	17·88	16·60	17·55	16·09	16·45
1957	Autumn.....	17·72	17·41	17·58	17·70	18·23	18·48	17·85	16·68	16·75	16·71	17·12	16·53
1957	Winter.....	15·80	15·38	14·92	15·48	16·00	16·18	15·63	14·32	14·66	15·55	15·04	13·85
1956/7	**Comm. Year....**	**17·27**	**17·07**	**16·58**	**16·73**	**17·53**	**17·67**	**17·14**	**15·96**	**15·84**	**16·44**	**15·87**	**15·40**

Temperatures, Spring, 1950—Winter, 1957.

Year.	Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1950	Spring.....	15·97	15·20	15·70	14·37	13·76	14·40	14·99	14·18	13·71	14·03	14·21	15·49
1950/1	Summer.....	15·55	16·01	15·94	15·37	13·94	14·17	15·01	13·18	13·41	13·07	14·02	15·67
1951	Autumn.....	14·94	14·68	15·70	14·88	14·49	14·28	13·87	13·65	13·94	14·17	14·18	16·00
1951	Winter.....	14·87	13·75	14·79	13·50	13·32	13·52	13·30	13·95	12·95	14·55	13·58	14·85
1950/1	**Comm. Year....**	**15·38**	**15·01**	**15·60**	**14·62**	**13·93**	**14·14**	**14·38**	**13·72**	**13·55**	**13·90**	**14·04**	**15·56**
1951	Spring.....	14·37	14·30	14·71	13·36	12·93	13·32	14·18	13·37	13·61	13·74	13·50	14·47
1951/2	Summer.....	16·83	15·31	17·03	14·67	13·60	13·85	15·20	13·61	13·25	17·06	14·46	16·63
1952	Autumn.....	15·54	14·63	15·79	14·47	12·31	14·05	14·15	13·71	13·91	15·00	13·94	15·85
1952	Winter.....	14·56	13·87	15·09	13·09	12·55	12·57	13·12	12·54	12·94	14·16	13·00	14·72
1951/2	**Comm. Year....**	**15·33**	**14·53**	**15·66**	**13·89**	**12·85**	**13·45**	**14·16**	**13·31**	**13·43**	**14·99**	**13·73**	**15·42**
1952	Spring.....	15·74	15·82	16·09	16·24	15·23	15·47	15·35	15·53	13·91	16·08	15·40	15·95
1952/3	Summer.....	15·14	14·96	15·68	15·08	14·08	14·11	13·78	13·29	12·66	14·67	13·95	15·78
1953	Autumn.....	15·86	15·81	16·25	15·75	15·40	14·57	15·14	14·68	14·23	14·58	14·91	16·05
1953	Winter.....	14·18	14·14	14·45	13·02	12·57	12·60	13·94	12·88	12·73	13·50	13·04	14·17
1952/3	**Comm. Year....**	**15·23**	**15·18**	**15·61**	**15·02**	**14·32**	**14·19**	**14·55**	**14·09**	**13·38**	**14·71**	**14·32**	**15·49**
1953	Spring.....	14·39	13·24	14·80	13·25	11·72	12·76	12·74	12·70	11·68	12·51	12·48	14·41
1953/4	Summer.....	15·93	15·05	15·72	14·56	13·05	13·58	14·39	13·71	13·44	12·85	13·65	15·71
1954	Autumn.....	15·93	15·61	16·19	15·11	14·64	14·22	14·57	13·88	14·94	13·14	14·36	16·08
1954	Winter.....	14·77	13·82	14·54	13·85	12·69	13·57	14·42	13·56	14·14	14·44	13·81	14·49
1953/4	**Comm. Year....**	**15·25**	**14·43**	**15·31**	**14·19**	**13·03**	**13·53**	**14·03**	**13·46**	**13·55**	**13·23**	**13·57**	**15·17**
1954	Spring.....	14·03	14·52	14·92	13·79	12·07	12·56	12·59	12·72	12·31	14·15	12·89	14·47
1954/5	Summer.....	14·64	14·77	15·29	15·04	14·45	15·76	14·66	14·60	12·98	13·89	14·48	15·53
1955	Autumn.....	14·79	15·27	15·50	14·76	13·63	12·76	14·38	12·75	13·59	12·89	13·54	15·16
1955	Winter.....	14·10	13·35	14·07	12·89	12·50	12·14	12·58	12·75	12·57	13·28	12·67	13·82
1954/5	**Comm. Year....**	**14·39**	**14·48**	**14·95**	**14·12**	**13·16**	**13·30**	**13·55**	**13·20**	**12·86**	**13·55**	**13·40**	**14·75**
1955	Spring.....	13·98	13·96	14·83	14·03	12·64	12·26	13·73	12·21	12·87	13·24	13·00	14·36
1955/6	Summer.....	15·28	14·10	15·75	14·18	13·64	13·19	12·67	12·63	12·51	14·01	13·26	15·41
1956	Autumn.....	15·08	13·74	15·30	13·68	12·74	12·69	12·86	12·63	13·24	14·27	13·16	15·05
1956	Winter.....	14·87	13·62	14·81	13·18	12·66	12·94	13·23	12·52	13·01	13·57	13·02	14·43
1955/6	**Comm. Year....**	**14·80**	**13·86**	**15·17**	**13·77**	**12·92**	**12·77**	**13·12**	**12·50**	**12·91**	**13·77**	**13·11**	**14·81**
1956	Spring.....	13·93	13·96	14·88	13·67	13·24	12·83	12·45	12·96	12·46	14·27	13·13	14·65
1956/7	Summer.....	16·06	15·13	16·53	15·68	15·62	14·65	15·05	14·26	14·60	14·16	14·86	16·66
1957	Autumn.....	15·58	14·80	16·31	14·27	13·78	13·24	13·88	13·61	13·58	14·74	13·87	15·92
1957	Winter.....	14·42	13·41	14·46	12·56	11·91	11·89	12·24	12·30	12·19	12·73	12·26	14·04
1956/7	**Comm. Year....**	**15·00**	**14·33**	**15·55**	**14·05**	**13·64**	**13·15**	**13·41**	**13·28**	**13·21**	**13·97**	**13·53**	**15·32**

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(ANNEXURE).

TABLE 8.—SEASONAL VARIATIONS OF 20 METRES

Year.	Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1950	Spring.....	16·24	16·05	16·10	16·05	16·83	16·86	16·35	15·07	14·83	15·76	15·05	14·54
1950/1	Summer.....	16·54	16·62	16·54	14·97	17·35	16·03	16·34	15·67	15·31	15·53	13·64	14·55
1951	Autumn.....	18·75	18·71	16·86	15·64	19·23	18·70	17·98	15·46	15·56	15·65	14·52	14·88
1951	Winter.....	16·63	16·57	16·13	15·48	16·61	16·39	16·30	14·83	14·97	15·22	14·27	15·11
1950/1	**Comm. Year....**	**17·08**	**17·02**	**16·43**	**15·54**	**17·59**	**17·05**	**16·79**	**15·29**	**15·18**	**15·57**	**14·38**	**14·74**
1951	Spring.....	15·03	15·35	14·67	15·14	15·16	15·38	15·12	14·31	14·50	15·31	15·12	13·72
1951/2	Summer.....	18·69	18·00	18·10	17·84	17·34	19·04	18·17	15·40	17·17	16·73	16·09	14·36
1952	Autumn.....	16·21	17·10	16·45	18·29	18·22	17·60	17·31	14·61	14·74	14·79	14·69	13·72
1952	Winter.....	16·27	16·08	15·63	15·87	16·36	16·41	16·10	15·05	14·58	15·36	14·66	15·57
1951/2	**Comm. Year....**	**16·55**	**16·63**	**16·21**	**16·78**	**16·77**	**17·11**	**16·68**	**14·84**	**15·25**	**15·55**	**15·14**	**14·34**
1952	Spring.....	16·50	16·17	16·41	15·44	16·15	15·95	16·10	15·53	15·62	15·79	15·46	15·76
1952/3	Summer.....	17·83	16·76	17·31	16·43	16·54	18·09	17·16	15·33	14·82	15·05	14·43	14·99
1953	Autumn.....	16·56	17·14	17·00	15·78	16·04	16·15	16·45	15·18	15·82	15·41	14·21	15·67
1953	Winter.....	14·95	14·89	14·91	15·07	15·31	15·22	15·06	14·13	14·56	14·73	14·69	14·02
1952/3	**Comm. Year....**	**16·46**	**16·24**	**16·41**	**15·68**	**16·00**	**16·35**	**16·19**	**15·04**	**15·21**	**15·25**	**14·70**	**15·11**
1953	Spring.....	15·58	16·32	14·67	15·79	16·21	16·41	15·83	13·86	15·12	15·27	14·94	14·18
1953/4	Summer.....	16·83	15·82	16·03	15·99	18·41	17·39	16·74	14·97	14·69	14·84	12·44	13·88
1954	Autumn.....	17·47	17·65	15·32	16·89	17·86	17·57	17·13	15·62	15·10	15·69	14·03	14·55
1954	Winter.....	15·11	14·95	14·95	15·17	15·40	15·21	15·13	14·22	14·41	15·03	14·80	14·75
1953/4	**Comm. Year....**	**16·25**	**16·19**	**15·24**	**15·96**	**16·97**	**16·64**	**16·21**	**14·67**	**14·83**	**15·21**	**14·05**	**14·34**
1954	Spring.....	16·11	15·45	16·02	15·09	15·93	15·46	15·68	15·04	14·51	15·77	15·07	14·85
1954/5	Summer.....	15·78	15·47	15·68	15·40	16·37	17·98	16·11	14·33	15·27	15·37	14·15	14·20
1955	Autumn.....	15·83	16·20	15·76	15·92	16·63	16·24	16·10	15·22	15·24	16·11	14·75	13·03
1955	Winter.....	15·16	14·87	14·62	14·61	14·87	14·75	14·81	14·08	14·19	13·87	14·19	13·65
1954/5	**Comm. Year....**	**15·72**	**15·50**	**15·52**	**15·26**	**15·95**	**16·11**	**15·68**	**14·67**	**14·80**	**15·28**	**14·54**	**13·93**
1955	Spring.....	15·41	15·34	15·12	15·36	15·41	15·52	15·36	14·86	14·73	15·17	14·96	14·18
1955/6	Summer.....	17·40	17·23	16·72	15·80	17·00	16·44	16·77	14·49	16·89	16·35	13·82	14·52
1956	Autumn.....	18·01	16·50	15·97	15·38	17·42	16·86	16·69	14·49	16·17	15·61	15·02	15·10
1956	Winter.....	15·76	15·68	15·37	14·90	15·43	15·28	15·40	15·15	15·17	14·86	13·94	15·08
1955/6	**Comm. Year....**	**16·65**	**16·19**	**15·79**	**15·36**	**16·31**	**16·02**	**16·05**	**14·75**	**15·74**	**15·50**	**14·43**	**14·72**
1956	Spring.....	16·34	16·33	15·50	15·98	16·24	16·32	16·12	14·90	14·94	15·78	15·18	14·29
1956/7	Summer.....	18·45	18·56	16·10	17·38	18·92	19·17	18·09	15·70	15·00	16·02	15·11	14·53
1957	Autumn.....	16·93	16·83	16·78	16·54	18·05	18·35	17·25	16·04	16·05	16·46	14·93	15·32
1957	Winter.....	15·80	15·38	14·90	15·48	15·80	15·91	15·55	14·32	14·62	15·52	14·95	13·85
1956/7	**Comm. Year....**	**16·88**	**16·77**	**15·82**	**16·35**	**17·25**	**17·44**	**16·75**	**15·24**	**15·15**	**15·95**	**15·04**	**14·50**

Temperatures, Spring, 1950—Winter, 1957.

Year.	Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1950	Spring.....	15·22	14·22	14·96	13·43	10·70	12·22	13·60	11·22	12·65	13·03	12·41	14·48
1950/1	Summer.....	14·26	14·06	14·72	13·50	10·58	10·80	13·72	9·04	11·44	12·34	11·63	14·12
1951	Autumn.....	14·14	12·75	14·71	12·73	12·34	12·49	13·00	10·63	11·29	12·86	12·19	14·81
1951	Winter.....	14·74	13·53	14·67	13·37	12·91	12·71	13·12	13·09	12·77	14·31	13·18	14·67
1950/1	**Comm. Year....**	**14·58**	**13·65**	**14·77**	**13·25**	**11·52**	**11·99**	**13·38**	**10·80**	**11·97**	**13·03**	**12·28**	**14·50**
1951	Spring.....	13·96	13·96	14·41	12·36	11·11	12·29	12·77	11·26	12·13	12·63	12·08	13·81
1951/2	Summer.....	15·61	13·75	15·59	12·09	10·25	10·84	13·12	9·28	12·39	13·51	11·64	14·98
1952	Autumn.....	13·71	14·25	14·36	12·45	10·25	11·04	12·87	10·26	12·19	11·92	11·57	14·27
1952	Winter.....	14·55	13·07	14·69	12·12	11·63	11·78	12·28	11·95	12·09	13·70	12·22	14·25
1951/2	**Comm. Year....**	**14·46**	**13·76**	**14·76**	**12·26**	**10·81**	**11·49**	**12·76**	**10·69**	**12·20**	**12·94**	**11·88**	**14·33**
1952	Spring.....	15·18	14·31	15·38	14·55	12·27	11·79	14·95	11·46	13·09	14·92	13·29	14·87
1952/3	Summer.....	14·65	13·31	14·65	12·08	10·21	11·12	12·40	9·47	10·77	12·71	11·25	14·21
1953	Autumn.....	15·40	13·99	15·10	13·21	12·32	12·01	13·84	11·52	12·98	12·68	12·65	14·65
1953	Winter.....	14·00	13·93	14·29	12·51	11·83	12·19	13·74	12·21	12·33	13·40	12·60	13·93
1952/3	**Comm. Year....**	**14·81**	**13·89**	**14·86**	**13·09**	**11·66**	**11·78**	**13·73**	**11·16**	**12·29**	**13·43**	**12·45**	**14·41**
1953	Spring.....	13·77	11·96	14·16	11·83	10·33	11·55	12·02	10·52	10·78	12·33	11·34	13·67
1953/4	Summer.....	14·31	13·27	14·06	12·08	9·38	9·31	12·31	9·02	11·73	10·70	10·65	13·67
1954	Autumn.....	14·79	13·74	14·79	11·69	12·65	11·76	12·47	11·84	11·33	12·53	12·04	14·53
1954	Winter.....	14·76	13·81	14·54	13·74	12·51	13·35	14·13	12·82	13·49	14·36	13·48	14·35
1953/4	**Comm. Year....**	**14·41**	**13·20**	**14·39**	**12·33**	**11·21**	**11·49**	**12·73**	**11·05**	**11·83**	**12·48**	**11·87**	**14·05**
1954	Spring.....	13·42	13·50	14·59	12·74	10·01	11·12	12·37	9·54	11·47	13·56	11·54	13·85
1954/5	Summer.....	13·23	12·93	14·21	12·01	9·80	10·02	12·16	9·06	11·55	12·23	10·98	13·65
1955	Autumn.....	13·96	13·73	14·58	11·16	10·93	10·04	12·25	10·23	11·23	11·87	11·10	13·82
1955	Winter.....	14·03	13·20	13·89	12·50	11·44	11·66	12·27	11·84	12·06	12·60	12·05	13·52
1954/5	**Comm. Year....**	**13·66**	**13·34**	**14·32**	**12·10**	**10·55**	**10·71**	**12·26**	**10·17**	**11·58**	**12·56**	**11·42**	**13·71**
1955	Spring.....	13·58	13·06	14·36	13·06	10·12	11·51	13·52	9·88	12·07	13·23	11·91	13·80
1955/6	Summer.....	15·08	13·46	14·94	12·26	9·63	10·20	12·28	8·64	11·31	11·56	10·84	14·06
1956	Autumn.....	14·15	12·78	14·76	11·37	10·13	9·93	12·09	9·59	10·90	13·37	11·05	14·04
1956	Winter.....	14·82	12·74	14·54	12·73	12·07	12·50	12·85	12·26	12·15	13·46	12·57	14·11
1955/6	**Comm. Year....**	**14·41**	**13·01**	**14·65**	**12·35**	**10·49**	**11·03**	**12·69**	**10·09**	**11·61**	**12·91**	**11·60**	**14·00**
1956	Spring.....	13·80	13·67	14·65	12·29	11·22	11·72	11·80	10·32	11·48	14·12	11·85	14·11
1956/7	Summer.....	14·42	13·36	14·88	11·83	11·36	10·80	12·04	9·74	11·41	12·08	11·32	14·60
1957	Autumn.....	15·15	13·55	15·36	11·74	10·69	11·01	12·30	10·81	11·37	13·43	11·62	14·62
1957	Winter.....	14·40	13·34	14·43	12·37	11·91	11·89	12·19	12·29	11·95	12·57	12·17	13·97
1956/7	**Comm. Year....**	**14·44**	**13·48**	**14·83**	**12·06**	**11·29**	**11·35**	**12·08**	**10·79**	**11·55**	**13·05**	**11·74**	**14·32**

(ANNEXURE).

TABLE 9.—SEASONAL VARIATIONS OF THE 0–50 METRES MEAN

Year.	Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1950	Spring.....	16·11	15·96	15·97	15·91	16·67	16·69	16·22	14·88	14·63	15·57	14·77	14·31
1950/1	Summer.....	16·04	16·12	16·19	14·61	16·79	15·94	15·95	15·37	14·75	14·99	13·27	14·05
1951	Autumn.....	18·62	18·68	16·40	15·09	19·03	18·39	17·70	14·95	14·93	15·55	13·92	14·24
1951	Winter.....	16·41	16·29	16·11	15·18	16·59	16·35	16·15	14·61	14·60	14·95	14·07	14·85
1950/1	**Comm. Year....**	**16·83**	**16·81**	**16·17**	**15·20**	**17·33**	**16·89**	**16·54**	**14·98**	**14·74**	**15·29**	**14·00**	**14·32**
1951	Spring.....	15·04	15·33	14·66	15·16	15·16	15·33	15·11	14·17	14·43	15·23	15·10	13·63
1951/2	Summer.....	18·28	17·47	17·59	16·99	16·88	18·38	17·60	15·15	16·51	16·24	15·45	14·46
1952	Autumn.....	15·70	16·19	16·11	17·29	17·95	17·10	16·72	14·11	14·21	13·94	14·34	13·05
1952	Winter.....	16·00	16·00	15·59	15·50	16·09	16·31	15·91	14·51	14·23	14·97	14·18	15·16
1951/2	**Comm. Year....**	**16·25**	**16·25**	**15·99**	**16·23**	**16·52**	**16·78**	**16·34**	**14·49**	**14·85**	**15·09**	**14·77**	**14·07**
1952	Spring.....	16·24	16·10	16·24	15·58	15·84	15·68	15·95	15·10	15·20	15·46	15·47	15·34
1952/3	Summer.....	16·89	15·75	16·71	15·76	16·19	16·97	16·38	14·32	14·48	14·30	13·99	14·11
1953	Autumn.....	16·36	16·23	16·28	15·55	15·95	15·94	16·05	14·66	15·41	15·00	13·88	14·81
1953	Winter.....	14·96	14·90	14·91	15·04	15·32	15·23	15·06	13·99	14·49	14·60	14·41	13·44
1952/3	**Comm. Year....**	**16·11**	**15·75**	**16·03**	**15·48**	**15·82**	**15·95**	**15·86**	**14·52**	**14·90**	**14·84**	**14·44**	**14·42**
1953	Spring.....	15·56	16·03	14·70	15·66	16·19	16·37	15·75	13·80	14·93	15·03	14·56	13·88
1953/4	Summer.....	16·60	16·02	15·97	15·35	17·66	17·01	16·43	14·50	14·40	14·34	12·39	13·36
1954	Autumn.....	17·21	16·94	15·13	15·96	17·65	17·03	16·65	14·99	14·70	14·37	13·53	14·09
1954	Winter.....	15·10	14·91	14·85	15·13	15·41	15·22	15·10	14·17	14·36	15·02	14·77	14·56
1953/4	**Comm. Year....**	**16·12**	**15·97**	**15·16**	**15·53**	**16·73**	**16·41**	**15·99**	**14·37**	**14·60**	**14·69**	**13·81**	**13·97**
1954	Spring.....	16·07	15·34	15·93	14·97	15·51	15·16	15·50	14·95	14·52	15·58	14·68	14·53
1954/5	Summer.....	15·40	15·15	15·13	15·36	15·94	16·92	15·65	13·99	14·51	15·01	13·47	13·63
1955	Autumn.....	15·63	15·18	15·30	15·22	15·88	15·26	15·41	14·34	14·58	14·93	13·89	12·74
1955	Winter.....	15·13	14·81	14·58	14·48	14·78	14·69	14·74	13·96	14·09	13·69	13·97	13·18
1954/5	**Comm. Year....**	**15·56**	**15·12**	**15·23**	**15·01**	**15·53**	**15·51**	**15·33**	**14·31**	**14·42**	**14·80**	**14·00**	**13·52**
1955	Spring.....	15·42	15·30	15·04	15·34	15·40	15·50	15·33	14·47	14·71	15·16	14·90	14·10
1955/6	Summer.....	16·80	16·66	16·08	15·61	16·48	16·09	16·29	13·76	16·23	15·87	13·67	14·34
1956	Autumn.....	17·54	15·75	15·29	14·54	16·45	15·64	15·87	13·73	15·63	15·19	13·84	14·22
1956	Winter.....	15·46	15·57	15·34	14·67	15·42	15·39	15·31	15·01	14·93	14·67	13·53	14·82
1955/6	**Comm. Year....**	**16·30**	**15·82**	**15·44**	**15·04**	**15·94**	**15·66**	**15·70**	**14·24**	**15·38**	**15·22**	**13·98**	**14·37**
1956	Spring.....	16·19	16·12	15·26	15·89	16·15	16·14	15·96	14·56	14·65	15·67	15·12	13·96
1956/7	Summer.....	17·95	17·18	15·80	16·25	18·00	18·20	17·23	14·90	14·36	15·13	14·29	13·89
1957	Autumn.....	16·72	16·55	16·35	14·80	17·57	18·03	16·67	15·06	15·41	15·75	14·24	14·49
1957	Winter.....	15·76	15·20	14·91	15·40	15·75	15·54	15·43	14·31	14·44	15·47	14·01	13·63
1956/7	**Comm. Year....**	**16·65**	**16·26**	**15·58**	**15·59**	**16·87**	**16·98**	**16·32**	**14·71**	**14·71**	**15·51**	**14·41**	**13·99**

Integral Temperatures, Spring, 1950—Winter, 1957.

Year.	Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1950	Spring.....	14·86	13·82	14·69	12·54	11·18	11·74	13·23	—	11·84	12·38	12·15	14·37
1950/1	Summer.....	13·94	13·35	14·25	12·57	10·84	10·82	12·79	—	10·93	11·77	11·62	13·95
1951	Autumn.....	14·06	12·44	14·30	11·85	11·52	11·45	12·78	—	11·16	12·56	11·88	14·61
1951	Winter.....	14·35	13·03	14·35	12·65	12·73	12·39	12·35	—	11·98	13·42	12·59	14·36
1950/1	**Comm. Year....**	**14·30**	**13·17**	**14·40**	**12·38**	**11·46**	**11·53**	**12·83**	—	**11·43**	**12·45**	**12·01**	**14·32**
1951	Spring.....	13·74	13·89	14·31	11·84	10·97	11·71	12·34	—	11·35	12·10	11·72	13·74
1951/2	Summer.....	15·09	13·38	15·18	11·78	10·60	10·72	12·54	—	11·70	13·08	11·74	14·86
1952	Autumn.....	13·36	13·03	13·72	11·81	10·44	11·33	12·50	—	11·80	12·14	11·67	14·02
1952	Winter.....	14·29	12·67	14·29	11·58	11·47	11·45	12·05	—	11·81	13·50	11·98	14·07
1951/2	**Comm. Year....**	**14·12**	**13·24**	**14·30**	**11·75**	**10·87**	**11·31**	**12·35**	—	**11·66**	**12·71**	**11·77**	**14·21**
1952	Spring.....	14·93	14·01	15·07	13·62	12·07	12·06	13·92	—	12·33	14·41	13·07	14·71
1952/3	Summer.....	13·73	12·94	13·98	11·44	10·57	10·67	12·08	—	10·46	12·32	11·26	13·88
1953	Autumn.....	14·17	13·35	14·47	12·65	12·09	12·00	12·72	—	12·51	12·15	12·35	14·30
1953	Winter.....	13·63	13·70	14·04	11·88	11·71	11·79	13·00	—	12·14	12·70	12·20	13·78
1952/3	**Comm. Year....**	**14·12**	**13·50**	**14·39**	**12·40**	**11·61**	**11·63**	**12·93**	—	**11·86**	**12·89**	**12·22**	**14·17**
1953	Spring.....	13·50	11·95	13·95	10·90	10·17	10·77	11·83	—	10·75	12·00	10·07	13·61
1953/4	Summer.....	13·68	12·80	13·64	11·67	9·76	9·93	11·47	—	11·15	10·83	10·80	13·63
1954	Autumn.....	14·17	12·84	14·10	11·50	12·27	11·77	12·23	—	11·89	12·21	11·98	14·23
1954	Winter.....	14·70	13·66	14·46	13·29	12·08	12·81	13·69	—	13·35	14·26	13·25	14·28
1953/4	**Comm. Year....**	**14·01**	**12·81**	**14·04**	**11·84**	**11·07**	**11·32**	**12·30**	—	**11·79**	**12·32**	**11·77**	**13·94**
1954	Spring.....	13·11	12·81	14·31	11·68	9·98	10·52	11·86	—	10·91	13·00	11·33	13·76
1954/5	Summer.....	13·22	12·35	13·74	11·72	10·44	10·85	11·70	—	10·78	11·43	11·15	13·53
1955	Autumn.....	13·32	12·66	13·78	11·39	10·88	10·42	11·85	—	11·02	11·26	11·14	13·46
1955	Winter.....	13·55	12·90	13·62	11·91	11·44	11·30	11·55	—	11·61	12·56	11·73	13·38
1954/5	**Comm. Year....**	**13·30**	**12·68**	**13·86**	**11·67**	**10·69**	**10·77**	**11·74**	—	**11·08**	**12·06**	**11·34**	**13·53**
1955	Spring.....	13·42	12·86	14·23	12·08	9·93	10·56	12·81	—	11·62	12·86	11·64	13·76
1955/6	Summer.....	14·29	12·28	14·35	11·32	10·21	10·10	11·61	—	10·78	11·53	10·92	13·88
1956	Autumn.....	13·94	12·33	14·12	11·19	10·32	10·31	11·25	—	10·81	12·50	11·06	13·71
1956	Winter.....	14·50	12·47	14·28	12·18	11·96	12·17	12·55	—	11·72	13·13	12·29	13·97
1955/6	**Comm. Year....**	**14·04**	**12·49**	**14·24**	**11·69**	**10·60**	**10·79**	**12·06**	—	**11·23**	**12·51**	**11·48**	**13·83**
1956	Spring.....	13·35	12·75	14·29	11·48	11·06	11·01	11·15	—	11·09	13·16	11·49	13·94
1956/7	Summer.....	13·56	12·68	14·12	11·90	11·48	10·95	11·85	—	11·00	11·46	11·44	14·25
1957	Autumn.....	14·15	12·62	14·53	11·57	10·88	10·73	11·85	—	11·43	12·65	11·52	14·25
1957	Winter.....	14·31	13·13	14·19	12·05	11·86	11·86	12·00	—	11·18	12·17	11·85	13·84
1956/7	**Comm. Year....**	**13·84**	**12·79**	**14·28**	**11·74**	**11·32**	**11·14**	**11·71**	—	**11·17**	**12·36**	**11·57**	**14·07**

(ANNEXURE).

TABLE 10.—SEASONAL VARIATION OF SURFACE

Year.	Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1950	Spring.....	35·36	35·38	35·39	35·38	35·42	35·41	35·39	35·25	35·20	35·33	35·23	35·16
1950/1	Summer.....	35·30	35·17	35·20	35·08	35·37	35·24	35·23	34·98	35·07	35·15	34·92	35·03
1951	Autumn.....	35·44	35·47	35·31	35·11	35·51	35·40	35·37	35·14	35·13	35·15	34·91	35·05
1951	Winter.....	35·43	35·44	35·40	35·35	35·49	35·45	35·43	35·25	35·27	35·27	35·08	35·31
1950/1	**Comm. Year....**	**35·38**	**35·35**	**35·32**	**35·22**	**35·45**	**35·37**	**35·35**	**35·15**	**35·16**	**35·22**	**35·03**	**35·12**
1951	Spring.....	35·43	35·45	35·33	35·43	35·43	35·42	35·41	35·21	35·26	35·46	35·43	35·16
1951/2	Summer.....	35·40	35·35	35·38	35·30	35·39	35·49	35·38	35·05	35·29	35·26	35·27	34·98
1952	Autumn.....	35·20	35·28	35·26	35·40	35·45	35·39	35·33	35·07	35·19	35·07	35·10	35·00
1952	Winter.....	35·34	35·32	35·33	35·36	35·37	35·37	35·35	35·26	35·21	35·27	35·25	35·20
1951/2	**Comm. Year....**	**35·34**	**35·35**	**35·33**	**35·37**	**35·41**	**35·42**	**35·37**	**35·15**	**35·24**	**35·26**	**35·26**	**35·09**
1952	Spring.....	35·37	35·32	35·34	35·34	35·33	35·30	35·33	35·23	35·20	35·22	35·25	35·19
1952/3	Summer.....	35·24	35·17	35·17	35·15	35·25	35·28	35·21	34·95	34·98	35·01	34·98	34·94
1953	Autumn.....	35·14	35·22	35·15	35·10	35·11	35·19	35·15	34·96	35·08	35·12	34·98	35·05
1953	Winter.....	35·28	35·26	35·29	35·32	35·35	35·36	35·31	35·13	35·23	35·22	35·19	35·14
1952/3	**Comm. Year....**	**35·25**	**35·24**	**35·24**	**35·23**	**35·26**	**35·28**	**35·25**	**35·07**	**35·12**	**35·14**	**35·10**	**35·08**
1953	Spring.....	35·28	35·35	35·20	35·31	35·36	35·38	35·31	35·11	35·20	35·24	35·21	35·16
1953/4	Summer.....	35·29	35·35	35·29	35·26	35·39	35·38	35·33	35·09	34·93	35·15	34·91	34·99
1954	Autumn.....	35·36	35·34	35·23	35·26	35·44	35·43	35·34	35·10	35·17	35·11	35·06	35·10
1954	Winter.....	35·29	35·26	35·27	35·32	35·35	35·31	35·30	35·08	35·11	35·25	35·24	35·25
1953/4	**Comm. Year....**	**35·31**	**35·32**	**35·25**	**35·29**	**35·39**	**35·37**	**35·32**	**35·08**	**35·10**	**35·19**	**35·11**	**35·12**
1954	Spring.....	35·39	35·32	35·38	35·33	35·41	35·33	35·36	35·26	35·21	35·36	35·28	35·24
1954/5	Summer.....	35·21	35·19	35·13	35·31	35·31	35·42	35·26	34·91	35·02	35·12	34·96	35·02
1955	Autumn.....	35·24	35·25	35·16	35·14	35·21	35·24	35·21	35·07	35·14	35·13	35·03	34·95
1955	Winter.....	35·27	35·24	35·23	35·22	35·25	35·22	35·24	35·17	35·16	35·13	35·19	35·09
1954/5	**Comm. Year....**	**35·28**	**35·25**	**35·22**	**35·25**	**35·29**	**35·30**	**35·27**	**35·10**	**35·13**	**35·19**	**35·12**	**35·08**
1955	Spring.....	35·39	35·33	35·27	35·39	35·39	35·39	35·36	35·21	35·26	35·34	35·35	35·22
1955/6	Summer.....	35·31	35·27	35·15	35·23	35·32	35·39	35·28	34·93	35·22	35·21	34·94	35·05
1956	Autumn.....	35·43	35·21	35·18	35·21	35·33	35·28	35·27	35·03	35·19	35·12	35·11	35·04
1956	Winter.....	35·33	35·36	35·35	35·31	35·35	35·36	35·34	35·32	35·32	35·30	35·12	35·34
1955/6	**Comm. Year....**	**35·37**	**35·29**	**35·24**	**35·28**	**35·35**	**35·35**	**35·31**	**35·12**	**35·25**	**35·24**	**35·13**	**35·16**
1956	Spring.....	35·41	35·39	35·30	35·38	35·41	35·42	35·39	35·13	35·21	35·35	35·28	35·14
1956/7	Summer.....	35·33	35·16	35·16	35·15	35·32	35·37	35·25	34·92	34·91	35·07	34·93	34·88
1957	Autumn.....	35·24	35·17	35·20	35·23	35·25	35·27	35·23	35·01	35·10	35·10	35·16	35·07
1957	Winter.....	35·21	35·23	35·19	35·25	35·25	35·28	35·23	35·13	35·14	35·19	35·21	35·07
1956/7	**Comm. Year....**	**35·30**	**35·24**	**35·21**	**35·25**	**35·31**	**35·33**	**35·27**	**35·05**	**35·09**	**35·18**	**35·15**	**35·04**

SALINITY, SPRING, 1950—WINTER, 1957.

Year.	Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1950	Spring.....	35·26	35·12	35·22	34·93	34·83	34·88	35·08	34·77	34·94	35·01	34·92	35·17
1950/1	Summer.....	34·97	34·89	35·00	34·79	34·75	34·72	34·83	34·69	34·73	34·82	34·76	34·99
1951	Autumn.....	34·98	34·80	35·02	34·78	34·74	34·76	34·76	34·71	34·83	34·84	34·77	35·04
1951	Winter.....	35·23	34·99	35·20	34·91	34·83	34·84	34·87	34·39	34·67	35·09	34·80	35·13
1950/1	**Comm. Year....**	**35·10**	**34·95**	**35·10**	**34·85**	**34·79**	**34·80**	**34·89**	**34·66**	**34·80**	**34·93**	**34·82**	**35·08**
1951	Spring.....	35·18	35·13	35·26	34·99	34·77	34·85	35·02	34·75	34·96	35·05	34·91	35·19
1951/2	Summer.....	35·13	34·96	35·13	34·81	34·76	34·74	34·87	34·74	34·77	34·93	34·80	35·09
1952	Autumn.....	35·00	34·87	35·04	34·80	34·77	34·77	34·83	34·75	34·87	34·82	34·80	35·05
1952	Winter.....	35·12	35·01	35·19	34·85	34·76	34·74	34·88	34·67	34·87	35·06	34·83	35·11
1951/2	**Comm. Year....**	**35·11**	**34·99**	**35·16**	**34·86**	**34·77**	**34·78**	**34·90**	**34·73**	**34·87**	**34·97**	**34·84**	**35·11**
1952	Spring.....	35·00	35·03	35·16	34·91	34·76	34·79	34·89	34·51	34·88	35·12	34·84	35·10
1952/3	Summer.....	34·85	34·81	34·93	34·76	34·76	34·73	34·76	34·71	34·70	34·86	34·75	34·95
1953	Autumn.....	34·88	34·79	34·98	34·76	34·76	34·71	34·78	34·70	34·78	34·82	34·76	34·95
1953	Winter.....	35·16	35·11	35·17	34·85	34·76	34·82	35·06	34·51	34·86	34·92	34·83	35·09
1952/3	**Comm. Year....**	**34·97**	**34·93**	**35·06**	**34·82**	**34·76**	**34·76**	**34·87**	**34·61**	**34·81**	**34·93**	**34·79**	**35·04**
1953	Spring.....	35·13	34·92	35·14	34·84	34·77	34·78	34·93	34·79	34·81	34·96	34·84	35·09
1953/4	Summer.....	34·97	34·85	34·97	34·82	34·74	34·74	34·77	34·69	34·72	34·76	34·75	35·00
1954	Autumn.....	35·05	34·90	35·07	34·80	34·76	34·75	34·79	34·69	34·79	34·78	34·77	35·05
1954	Winter.....	35·26	35·08	35·18	35·04	34·74	34·89	35·17	34·23	35·15	35·12	34·91	35·12
1953/4	**Comm. Year....**	**35·10**	**34·94**	**35·09**	**34·87**	**34·75**	**34·79**	**34·91**	**34·59**	**34·87**	**34·90**	**34·82**	**35·06**
1954	Spring.....	35·09	35·07	35·22	34·90	34·74	34·73	34·86	34·69	34·77	34·97	34·81	35·12
1954/5	Summer.....	34·85	34·79	34·95	34·74	34·71	34·71	34·75	34·71	34·74	34·81	34·74	34·97
1955	Autumn.....	34·98	34·94	35·03	34·80	34·80	34·76	34·90	34·74	34·86	34·81	34·81	35·01
1955	Winter.....	35·15	35·03	35·13	34·91	34·67	34·67	34·86	33·96	34·67	34·98	34·67	35·00
1954/5	**Comm. Year....**	**35·02**	**34·96**	**35·08**	**34·84**	**34·73**	**34·72**	**34·84**	**34·53**	**34·76**	**34·89**	**34·76**	**35·02**
1955	Spring.....	35·18	35·11	35·24	34·98	34·72	34·75	35·08	34·76	34·98	35·03	34·90	35·16
1955/6	Summer.....	35·08	34·80	35·03	34·74	34·70	34·66	34·70	34·67	34·67	34·75	34·70	34·99
1956	Autumn.....	35·03	34·82	35·05	34·77	34·70	34·69	34·73	34·57	34·81	34·91	34·74	35·01
1956	Winter.....	35·28	35·07	35·25	34·97	34·75	34·90	34·98	34·43	34·93	35·06	34·86	35·14
1955/6	**Comm. Year....**	**35·14**	**34·95**	**35·14**	**34·86**	**34·72**	**34·75**	**34·87**	**34·61**	**34·85**	**34·94**	**34·80**	**35·07**
1956	Spring.....	35·00	34·95	35·15	34·84	34·75	34·77	34·83	34·55	34·79	35·06	34·80	35·10
1956/7	Summer.....	34·87	34·80	34·91	34·74	34·72	34·70	34·72	34·67	34·75	34·79	34·73	34·95
1957	Autumn.....	35·07	34·88	35·05	34·79	34·71	34·72	34·80	34·66	34·67	34·87	34·75	35·00
1957	Winter.....	35·14	34·99	35·12	34·74	34·69	34·66	34·85	34·57	34·76	34·92	34·74	35·01
1956/7	**Comm. Year....**	**35·02**	**34·91**	**35·06**	**34·78**	**34·72**	**34·71**	**34·80**	**34·61**	**34·74**	**34·91**	**34·75**	**35·02**

(ANNEXURE).

TABLE 11.—SEASONAL VARIATION OF 20 METRES

Year.	Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1950	Spring.....	35·36	35·37	35·36	35·37	35·39	35·40	35·37	35·19	35·15	35·31	35·23	35·16
1950/1	Summer.....	35·26	35·14	35·15	35·07	35·36	35·19	35·19	34·99	35·07	35·14	34·93	34·99
1951	Autumn.....	35·43	35·46	35·28	35·08	35·50	35·40	35·36	35·14	35·11	35·13	34·93	35·02
1951	Winter.....	35·43	35·44	35·39	35·30	35·49	35·46	35·42	35·25	35·27	35·28	35·10	35·30
1950/1	Comm. Year....	35·36	35·35	35·29	35·19	35·43	35·35	35·33	35·13	35·14	35·21	35·04	35·10
1951	Spring.....	35·43	35·44	35·32	35·43	35·43	35·42	35·41	35·21	35·26	35·46	35·43	35·16
1951/2	Summer.....	35·40	35·39	35·35	35·33	35·35	35·48	35·38	35·08	35·28	35·26	35·25	35·14
1952	Autumn.....	35·17	35·24	35·21	35·38	35·45	35·35	35·30	35·01	35·08	35·03	35·05	35·01
1952	Winter.....	35·33	35·31	35·32	35·34	35·36	35·37	35·34	35·23	35·22	35·21	35·21	35·20
1951/2	Comm. Year....	35·33	35·34	35·30	35·37	35·40	35·40	35·36	35·13	35·21	35·24	35·23	35·13
1952	Spring.....	35·36	35·31	35·34	35·25	35·33	35·35	35·32	35·20	35·18	35·20	35·22	35·24
1952/3	Summer.....	35·27	35·15	35·17	35·13	35·21	35·28	35·20	34·95	34·97	34·98	34·95	34·97
1953	Autumn.....	35·19	35·23	35·15	35·07	35·11	35·19	35·16	34·98	35·08	35·03	35·03	35·05
1953	Winter.....	35·28	35·25	35·31	35·30	35·35	35·34	35·30	35·13	35·23	35·21	35·17	35·12
1952/3	Comm. Year....	35·27	35·24	35·24	35·19	35·25	35·29	35·25	35·06	35·12	35·11	35·09	35·09
1953	Spring.....	35·28	35·37	35·17	35·28	35·35	35·38	35·31	35·08	35·23	35·25	35·18	35·15
1953/4	Summer.....	35·20	35·23	35·27	35·23	35·38	35·35	35·28	35·02	34·91	35·06	34·87	34·93
1954	Autumn.....	35·35	35·32	35·14	35·35	35·42	35·41	35·33	35·11	35·11	35·12	35·03	35·10
1954	Winter.....	35·29	35·26	35·27	35·32	35·34	35·31	35·30	35·10	35·17	35·28	35·26	35·24
1953/4	Comm. Year....	35·28	35·29	35·21	35·29	35·37	35·38	35·30	35·08	35·10	35·18	35·09	35·11
1954	Spring.....	35·39	35·32	35·39	35·31	35·41	35·29	35·35	35·24	35·21	35·36	35·28	35·24
1954/5	Summer.....	35·21	35·14	35·13	35·15	35·26	35·40	35·21	34·97	35·01	35·11	34·97	35·02
1955	Autumn.....	35·17	35·16	35·23	35·15	35·17	35·25	35·19	35·04	35·18	35·12	35·03	34·91
1955	Winter.....	35·26	35·22	35·21	35·21	35·21	35·22	35·22	35·14	35·15	35·11	35·15	35·08
1954/5	Comm. Year....	35·26	35·21	35·24	35·21	35·26	35·29	35·24	35·10	35·14	35·17	35·11	35·06
1955	Spring.....	35·39	35·32	35·27	35·39	35·39	35·39	35·36	35·21	35·22	35·36	35·34	35·20
1955/6	Summer.....	35·30	35·27	35·16	35·25	35·31	35·29	35·26	34·95	35·20	35·18	35·01	35·10
1956	Autumn.....	35·41	35·20	35·17	35·14	35·33	35·28	35·26	35·05	35·18	35·09	35·13	35·08
1956	Winter.....	35·33	35·36	35·35	35·30	35·35	35·33	35·34	35·32	35·32	35·29	35·13	35·33
1955/6	Comm. Year....	35·36	35·29	35·24	35·27	35·34	35·32	35·30	35·13	35·23	35·23	35·15	35·18
1956	Spring.....	35·41	35·39	35·29	35·38	35·40	35·42	35·38	35·13	35·20	35·34	35·28	35·12
1956/7	Summer.....	35·29	35·15	35·18	35·17	35·33	35·37	35·25	34·93	34·94	35·17	34·95	34·96
1957	Autumn.....	35·22	35·15	35·13	35·24	35·26	35·27	35·21	35·00	35·12	35·11	35·14	35·06
1957	Winter.....	35·21	35·23	35·19	35·25	35·25	35·26	35·23	35·13	35·14	35·19	35·21	35·07
1956/7	Comm. Year....	35·28	35·23	35·20	35·26	35·31	35·33	35·27	35·05	35·10	35·20	35·19	35·05

SALINITY, SPRING, 1950—WINTER, 1957.

Year.	Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1950	Spring.....	35·21	35·09	35·19	34·91	34·78	34·84	35·04	34·79	34·90	35·00	34·89	35·14
1950/1	Summer.....	34·94	34·88	34·99	34·77	34·74	34·71	34·83	34·67	34·73	34·82	34·75	34·97
1951	Autumn.....	34·95	34·81	35·01	34·77	34·71	34·74	34·76	34·67	34·75	34·81	34·74	35·02
1951	Winter.....	35·23	34·97	35·20	34·91	34·83	34·84	34·87	34·42	34·75	35·09	34·82	35·13
1950/1	**Comm. Year....**	**35·07**	**34·93**	**35·09**	**34·83**	**34·76**	**34·78**	**34·88**	**34·66**	**34·79**	**34·92**	**34·80**	**35·06**
1951	Spring.....	35·17	35·13	35·26	34·92	34·76	34·83	35·03	34·76	34·88	35·05	34·89	35·18
1951/2	Summer.....	35·20	34·99	35·17	34·89	34·76	34·75	34·98	34·71	34·81	34·92	34·83	35·11
1952	Autumn.....	35·00	34·89	35·01	34·76	34·74	34·73	34·91	34·73	34·91	34·80	34·80	35·02
1952	Winter.....	35·20	34·97	35·18	34·84	34·75	34·76	34·88	34·70	34·82	35·05	34·83	35·10
1951/2	**Comm. Year....**	**35·14**	**34·99**	**35·16**	**34·85**	**34·75**	**34·77**	**34·95**	**34·72**	**34·86**	**34·95**	**34·84**	**35·10**
1952	Spring.....	35·17	35·04	35·18	34·97	34·76	34·79	35·03	34·76	34·97	35·07	34·91	35·13
1952/3	Summer.....	34·92	34·83	34·94	34·78	34·72	34·71	34·78	34·67	34·75	34·92	34·76	34·96
1953	Autumn.....	34·89	34·83	34·98	34·79	34·80	34·75	34·82	34·75	34·76	34·82	34·78	34·97
1953	Winter.....	35·14	35·10	35·16	34·83	34·75	34·82	35·04	34·70	34·84	34·91	34·84	35·09
1952/3	**Comm. Year....**	**35·03**	**34·95**	**35·06**	**34·84**	**34·76**	**34·77**	**34·92**	**34·72**	**34·83**	**34·93**	**34·82**	**35·04**
1953	Spring.....	35·10	34·93	35·13	34·86	34·73	34·76	34·90	34·73	34·75	34·95	34·81	35·07
1953/4	Summer.....	34·94	34·82	34·94	34·82	34·72	34·71	34·77	34·65	34·72	34·78	34·74	34·97
1954	Autumn.....	35·11	34·92	35·07	34·85	34·76	34·76	34·84	34·72	34·77	34·86	34·80	35·05
1954	Winter.....	35·26	35·08	35·20	35·02	34·78	34·91	35·14	34·74	35·08	35·13	34·97	35·15
1953/4	**Comm. Year....**	**35·10**	**34·94**	**35·08**	**34·89**	**34·75**	**34·79**	**34·91**	**34·71**	**34·83**	**34·93**	**34·83**	**35·06**
1954	Spring.....	35·09	35·08	35·21	34·90	34·76	34·73	34·89	34·71	34·79	34·98	34·82	35·12
1954/5	Summer.....	34·94	34·87	34·98	34·76	34·73	34·72	34·74	34·69	34·71	34·83	34·74	34·97
1955	Autumn.....	34·97	34·91	35·02	34·79	34·76	34·74	34·85	34·72	34·75	34·80	34·77	34·99
1955	Winter.....	35·12	35·00	35·11	34·85	34·74	34·70	34·87	34·63	34·74	34·98	34·79	35·03
1954/5	**Comm. Year....**	**35·03**	**34·97**	**35·08**	**34·83**	**34·75**	**34·72**	**34·84**	**34·69**	**34·75**	**34·90**	**34·78**	**35·03**
1955	Spring.....	35·14	35·11	35·23	35·01	34·69	34·74	35·08	34·71	34·97	35·03	34·89	35·15
1955/6	Summer.....	35·11	34·84	35·06	34·76	34·69	34·67	34·95	34·64	34·69	34·86	34·75	35·01
1956	Autumn.....	35·02	34·86	35·06	34·87	34·71	34·69	34·78	34·69	34·81	34·95	34·79	35·02
1956	Winter.....	35·28	34·98	35·24	34·96	34·82	34·85	34·97	34·73	34·88	35·03	34·89	35·15
1955/6	**Comm. Year....**	**35·14**	**34·95**	**35·14**	**34·90**	**34·73**	**34·74**	**34·94**	**34·69**	**34·84**	**34·97**	**34·83**	**35·08**
1956	Spring.....	35·01	34·97	35·15	34·87	34·76	34·77	34·89	34·77	34·79	35·06	34·84	35·11
1956/7	Summer.....	34·88	34·79	34·95	34·81	34·73	34·71	34·77	34·67	34·82	34·78	34·75	34·97
1957	Autumn.....	35·02	34·87	35·05	34·79	34·70	34·71	34·89	34·68	34·77	34·91	34·78	35·00
1957	Winter.....	35·14	34·99	35·14	34·74	34·69	34·67	34·85	34·59	34·79	34·95	34·75	35·03
1956/7	**Comm. Year....**	**35·01**	**34·91**	**35·07**	**34·80**	**34·72**	**34·71**	**34·85**	**34·68**	**34·79**	**34·93**	**34·78**	**35·03**

(ANNEXURE).

TABLE 12.—SEASONAL VARIATION OF THE 0–50 METRES MEAN

Year.	Season.	A.	B.	C.	G.	S.	T.	Average Outer Stations.	D.	E.	F.	H.	I.
1950	Spring.....	35·34	35·36	35·35	35·36	35·40	35·40	35·37	35·18	35·14	35·30	35·21	35·15
1950/1	Summer.....	35·24	35·17	35·14	35·08	35·34	35·20	35·19	34·98	35·05	35·12	34·94	35·01
1951	Autumn.....	35·42	35·46	35·25	35·05	35·49	35·39	35·34	35·12	35·11	35·14	34·95	35·01
1951	Winter.....	35·43	35·41	35·39	35·27	35·49	35·45	35·41	35·23	35·23	35·27	35·09	35·29
1950/1	**Comm. Year....**	**35·35**	**35·34**	**35·27**	**35·17**	**35·42**	**35·35**	**35·32**	**35·12**	**35·13**	**35·20**	**35·04**	**35·09**
1951	Spring.....	35·42	35·44	35·33	35·43	35·43	35·42	35·41	35·21	35·26	35·46	35·42	35·15
1951/2	Summer.....	35·40	35·36	35·37	35·33	35·33	35·44	35·37	35·07	35·27	35·24	35·20	35·09
1952	Autumn.....	35·15	35·18	35·19	35·33	35·43	35·33	35·27	35·02	35·06	35·00	35·06	34·96
1952	Winter.....	35·29	35·31	35·32	35·31	35·33	35·36	35·32	35·19	35·18	35·19	35·17	35·20
1951/2	**Comm. Year....**	**35·32**	**35·32**	**35·30**	**35·35**	**35·38**	**35·37**	**35·34**	**35·12**	**35·19**	**35·22**	**35·21**	**35·10**
1952	Spring.....	35·36	35·31	35·34	35·28	35·34	35·33	35·33	35·19	35·17	35·19	35·22	35·22
1952/3	Summer.....	35·23	35·14	35·14	35·17	35·19	35·26	35·19	34·94	34·99	34·99	34·98	35·00
1953	Autumn.....	35·18	35·21	35·16	35·08	35·10	35·19	35·15	34·96	35·08	35·04	35·00	35·03
1953	Winter.....	35·28	35·26	35·31	35·30	35·35	35·35	35·31	35·11	35·22	35·20	35·15	35·08
1952/3	**Comm. Year....**	**35·26**	**35·23**	**35·23**	**35·21**	**35·24**	**35·28**	**35·24**	**35·05**	**35·11**	**35·11**	**35·09**	**35·08**
1953	Spring.....	35·28	35·35	35·17	35·29	35·35	35·38	35·30	35·07	35·21	35·25	35·18	35·13
1953/4	Summer.....	35·18	35·29	35·26	35·24	35·37	35·34	35·28	35·01	34·92	35·07	34·88	34·94
1954	Autumn.....	35·35	35·27	35·15	15·26	35·42	35·36	35·30	35·10	35·12	35·02	34·99	35·07
1954	Winter.....	35·29	35·26	35·26	35·31	35·34	35·31	35·30	35·12	35·15	35·27	35·26	35·23
1953/4	**Comm. Year....**	**35·27**	**35·29**	**35·21**	**35·27**	**35·37**	**35·34**	**35·29**	**35·08**	**35·10**	**35·15**	**35·08**	**35·09**
1954	Spring.....	35·39	35·32	35·39	35·31	35·39	35·33	35·35	35·24	35·23	35·36	35·28	35·24
1954/5	Summer.....	35·20	35·16	35·13	35·19	35·23	35·35	35·21	34·97	35·01	35·11	34·97	35·06
1955	Autumn.....	35·16	35·11	35·16	35·14	35·16	35·20	35·15	35·04	35·10	35·08	35·00	34·93
1955	Winter.....	35·25	35·21	35·21	35·20	35·21	35·21	35·22	35·14	35·14	35·09	35·13	35·05
1954/5	**Comm. Year....**	**35·25**	**35·20**	**35·22**	**35·21**	**35·25**	**35·27**	**35·23**	**35·10**	**35·12**	**35·16**	**35·09**	**35·07**
1955	Spring.....	35·39	35·32	35·26	35·39	35·39	35·39	35·36	35·18	35·23	35·34	35·33	35·19
1955/6	Summer.....	35·28	35·27	35·14	35·19	35·31	35·23	35·24	34·96	35·18	35·18	34·96	35·10
1956	Autumn.....	35·38	35·16	35·13	35·11	35·26	35·20	35·21	35·04	35·16	35·10	35·05	35·05
1956	Winter.....	35·32	35·35	35·35	35·26	35·33	35·32	35·32	35·31	35·28	35·27	35·11	35·31
1955/6	**Comm. Year....**	**35·34**	**35·27**	**35·22**	**35·24**	**35·32**	**35·29**	**35·28**	**35·12**	**35·21**	**35·22**	**35·11**	**35·16**
1956	Spring.....	35·40	35·38	35·29	35·38	35·41	35·42	35·38	35·13	35·18	35·34	35·27	35·14
1956/7	Summer.....	35·31	35·13	35·17	35·17	35·32	35·34	35·24	34·95	34·95	35·12	34·93	34·92
1957	Autumn.....	35·20	35·15	35·17	35·15	35·24	35·26	35·20	34·98	35·11	35·11	35·07	35·03
1957	Winter.....	35·21	35·21	35·19	35·24	35·24	35·23	35·22	35·13	35·12	35·19	35·11	35·06
1956/7	**Comm. Year....**	**35·28**	**35·22**	**35·21**	**35·23**	**35·30**	**35·31**	**35·26**	**35·05**	**35·09**	**35·19**	**35·09**	**35·04**

Integral Salinity, Spring, 1950—Winter, 1957.

Year.	Season.	J.	K.	Average Intermediate Stations.	L.	M.	N.	O.	P.	Q.	R.	Average Coastal Stations.	Average Routine Area.
1950	Spring.....	35·19	35·07	35·18	34·88	34·76	34·80	35·02	—	34·87	34·96	34·88	35·15
1950/1	Summer.....	34·93	34·88	34·99	34·79	34·72	34·69	34·82	—	34·72	34·81	34·76	34·98
1951	Autumn.....	34·98	34·81	35·02	34·75	34·71	34·73	34·77	—	34·74	34·83	34·76	35·04
1951	Winter.....	35·21	34·98	35·19	34·87	34·83	34·81	34·83	—	34·73	35·03	34·85	35·15
1950/1	**Comm. Year....**	**35·07**	**34·93**	**35·08**	**34·82**	**34·75**	**34·76**	**34·86**	—	**34·77**	**34·90**	**34·81**	**35·07**
1951	Spring.....	35·17	35·13	35·26	34·90	34·75	34·81	34·99	—	34·86	34·98	34·88	35·19
1951/2	Summer.....	35·16	34·98	35·14	34·84	34·74	34·73	34·91	—	34·80	34·90	34·82	35·11
1952	Autumn.....	34·96	34·90	34·99	34·76	34·73	34·74	34·88	—	34·85	34·78	34·79	35·02
1952	Winter.....	35·15	34·94	35·14	34·81	34·75	34·76	34·85	—	34·81	35·03	34·84	35·10
1951/2	**Comm. Year....**	**35·11**	**34·99**	**35·14**	**34·82**	**34·74**	**34·76**	**34·91**	—	**34·83**	**34·92**	**34·83**	**35·10**
1952	Spring.....	35·13	35·03	35·16	34·92	34·76	34·76	34·98	—	34·89	35·08	34·90	35·13
1952/3	Summer.....	34·92	34·82	34·95	34·76	34·71	34·70	34·80	—	34·71	34·87	34·76	34·96
1953	Autumn.....	34·90	34·82	34·98	34·80	34·78	34·75	34·80	—	34·76	34·79	34·78	34·97
1953	Winter.....	35·11	35·08	35·14	34·82	34·77	34·81	34·98	—	34·83	34·88	34·85	35·10
1952/3	**Comm. Year....**	**35·02**	**34·94**	**35·06**	**34·83**	**34·75**	**34·75**	**34·89**	—	**34·80**	**34·91**	**34·82**	**35·04**
1953	Spring.....	35·09	34·92	35·12	34·83	34·73	34·74	34·91	—	34·77	34·95	34·82	35·08
1953/4	Summer.....	34·95	34·85	34·95	34·79	34·71	34·69	34·75	—	34·72	34·76	34·74	34·99
1954	Autumn.....	35·05	34·88	35·03	34·79	34·77	34·76	34·81	—	34·76	34·82	34·78	35·04
1954	Winter.....	35·26	35·08	35·20	35·00	34·79	34·88	35·11	—	35·07	35·14	35·00	35·17
1953/4	**Comm. Year....**	**35·09**	**34·93**	**35·07**	**34·85**	**34·75**	**34·77**	**35·00**	—	**34·83**	**34·92**	**34·84**	**35·07**
1954	Spring.....	35·08	35·00	35·20	34·87	34·73	34·71	34·89	—	34·77	34·96	34·82	35·13
1954/5	Summer.....	34·98	34·84	34·99	34·73	34·71	34·72	34·76	—	34·71	34·79	34·74	34·98
1955	Autumn.....	34·95	34·88	35·00	34·79	34·77	34·74	34·84	—	34·78	34·79	34·79	34·98
1955	Winter.....	35·09	34·97	35·09	34·82	34·74	34·72	34·83	—	34·74	34·96	34·80	35·04
1954/5	**Comm. Year....**	**35·03**	**34·92**	**35·07**	**34·80**	**34·73**	**34·72**	**34·83**	—	**34·75**	**34·88**	**34·79**	**35·03**
1955	Spring.....	35·14	35·07	35·21	34·92	34·69	34·73	35·02	—	34·92	35·01	34·88	35·15
1955/6	Summer.....	35·07	34·83	35·04	34·73	34·69	34·66	34·85	—	34·69	34·80	34·74	35·01
1956	Autumn.....	35·02	34·86	35·04	34·78	34·70	34·68	34·73	—	34·79	34·90	34·76	35·01
1956	Winter.....	35·25	34·96	35·21	34·92	34·80	34·85	34·96	—	34·84	35·00	34·89	35·15
1955/6	**Comm. Year....**	**35·12**	**34·93**	**35·13**	**34·84**	**34·72**	**34·73**	**34·89**	—	**34·81**	**34·93**	**34·82**	**35·08**
1956	Spring.....	35·03	34·95	35·15	34·82	34·74	34·75	34·85	—	34·80	35·00	34·83	35·12
1956/7	Summer.....	34·90	34·80	34·94	34·77	34·71	34·69	34·77	—	34·74	34·76	34·74	34·97
1957	Autumn.....	35·00	34·85	35·02	34·76	34·70	34·70	34·84	—	34·74	34·86	34·77	35·00
1957	Winter.....	35·13	34·97	35·10	34·74	34·70	34·67	34·84	—	34·74	34·90	34·76	35·03
1956/7	**Comm. Year....**	**35·01**	**34·89**	**35·05**	**34·77**	**34·71**	**34·70**	**34·82**	—	**34·75**	**34·88**	**34·77**	**35·03**

ANNEXURE.

TABLE 13.—ANNUAL TEMPERATURE AND SALINITY VALUES.

(a) *Temperature—Whole Area.*

Value of	1950/51.	1951/52.	1952/53.	1953/54.	1954/55.	1955/56.	1956/57.	Average.
0 Metres	15·56	15·42	15·49	15·17	14·75	14·81	15·32	15·22
20 Metres	14·50	14·33	14·41	14·05	13·71	14·00	14·33	14·19
0–50 Metres	14·32	14·21	14·17	13·94	13·53	13·83	14·07	14·01

(b) *Salinity—Whole Area.*

0 Metres	35·08	35·11	35·04	35·06	35·02	35·07	35·02	35·06
20 Metres	35·06	35·10	35·04	35·06	35·03	35·08	35·03	35·06
0–50 Metres	35·07	35·10	35·04	35·07	35·03	35·08	35·03	35·06

(c) *Temperature—Outer Area.*

0 Metres	17·30	17·12	16·69	16·88	16·09	16·38	17·14	16·80
20 Metres	16·79	16·68	16·19	16·21	15·68	16·05	16·75	16·34
0–50 Metres	16·54	16·34	15·86	15·99	15·33	15·70	16·32	16·01

(d) *Salinity—Outer Area.*

0 Metres	35·35	35·37	35·25	35·32	35·27	35·31	35·27	35·31
20 Metres	35·33	35·36	35·25	35·30	35·24	35·30	35·27	35·29
0–50 Metres	35·32	35·34	35·24	35·29	35·23	35·28	35·26	35·28

(e) *Temperature—Intermediate Area.*

0 Metres	15·60	15·66	15·61	15·31	14·95	15·17	15·55	15·41
20 Metres	14·77	14·76	14·86	14·39	14·32	14·65	14·83	14·65
0–50 Metres	14·40	14·30	14·39	14·04	13·86	14·24	14·28	14·22

(f) *Salinity—Intermediate Area.*

0 Metres	35·10	35·16	35·06	35·09	35·08	35·14	35·06	35·10
20 Metres	35·09	35·16	35·06	35·08	35·08	35·14	35·07	35·10
0–50 Metres	35·08	35·14	35·06	35·07	35·07	35·13	35·05	35·09

(g) *Temperature—Coastal Area.*

0 Metres	14·04	13·73	14·32	13·57	13·40	13·11	13·53	13·67
20 Metres	12·28	11·88	12·45	11·87	11·42	11·60	11·73	11·89
0–50 Metres	12·01	11·77	12·22	11·77	11·34	11·48	11·57	11·74

(h) *Salinity—Coastal Area.*

0 Metres	34·82	34·84	34·79	34·82	34·76	34·80	34·75	34·80
20 Metres	34·80	34·84	34·82	34·83	34·78	34·83	34·78	34·81
0–50 Metres	34·81	34·83	34·82	34·84	34·79	34·82	34·77	34·81

TABLE 14.—DEVIATION FROM ANNUAL AVERAGES (TEMPERATURES AND SALINITY).

(a) *Temperature—Whole Area.*

Value of	1950/51.	1951/52.	1952/53.	1953/54.	1954/55.	1955/56.	1956/57.
0 Metres	+ 0·34	+ 0·20	+ 0·27	− 0·05	− 0·47	− 0·41	+ 0·10
20 Metres	+ 0·31	+ 0·14	+ 0·22	− 0·14	− 0·48	− 0·19	+ 0·13
0–50 Metres	+ 0·31	+ 0·20	+ 0·16	− 0·07	− 0·48	− 0·18	+ 0·06

(b) *Salinity—Whole Area.*

0 Metres	+ 0·02	+ 0·05	− 0·02	0·00	− 0·04	+ 0·01	− 0·04
20 Metres	0·00	+ 0·04	− 0·02	0·00	− 0·03	+ 0·02	− 0·03
0–50 Metres	+ 0·01	+ 0·04	− 0·02	+ 0·01	− 0·03	+ 0·02	− 0·03

(c) *Temperature—Outer Area.*

0 Metres	+ 0·50	+ 0·32	− 0·11	+ 0·08	− 0·71	− 0·42	+ 0·34
20 Metres	+ 0·45	+ 0·34	− 0·15	− 0·13	− 0·66	− 0·29	+ 0·41
0–50 Metres	+ 0·53	+ 0·33	− 0·15	− 0·02	− 0·68	− 0·31	+ 0·31

(d) *Salinity—Outer Area.*

0 Metres	+ 0·04	+ 0·06	− 0·06	+ 0·01	− 0·04	0·00	− 0·04
20 Metres	+ 0·04	+ 0·07	− 0·04	+ 0·01	− 0·05	+ 0·01	− 0·02
0–50 Metres	+ 0·04	+ 0·06	− 0·04	+ 0·01	− 0·05	0·00	− 0·02

(e) *Temperature—Intermediate Area.*

0 Metres	+ 0·19	+ 0·25	+ 0·20	− 0·10	− 0·46	− 0·24	+ 0·14
20 Metres	+ 0·12	+ 0·11	+ 0·21	− 0·26	− 0·33	0·00	+ 0·18
0–50 Metres	+ 0·18	+ 0·08	+ 0·17	− 0·18	− 0·36	+ 0·02	+ 0·06

(f) *Salinity—IntermediateArea.*

0 Metres	0·00	+ 0·06	− 0·04	− 0·01	− 0·02	+ 0·04	− 0·04
20 Metres	− 0·01	+ 0·06	− 0·04	− 0·02	− 0·02	+ 0·04	− 0·03
0–50 Metres	− 0·01	+ 0·05	− 0·03	− 0·02	− 0·02	+ 0·04	− 0·04

(g) *Temperature—Coastal Area.*

0 Metres	+ 0·37	+ 0·06	+ 0·65	− 0·10	− 0·27	− 0·56	− 0·14
20 Metres	+ 0·39	− 0·01	+ 0·56	− 0·02	− 0·47	− 0·29	− 0·15
0–50 Metres	+ 0·27	+ 0·03	+ 0·48	− 0·03	− 0·40	− 0·26	− 0·17

(h) *Salinity—Coastal Area.*

0 Metres	+ 0·02	+ 0·04	− 0·01	+ 0·02	− 0·04	0·00	− 0·05
20 Metres	− 0·01	+ 0·03	+ 0·01	+ 0·02	− 0·03	+ 0·02	− 0·03
0–50 Metres	0·00	+ 0·02	+ 0·01	+ 0·03	− 0·02	+ 0·01	− 0·04

TABLE 15.—SEASONAL TEMPERATURE AND SALINITY VALUES FOR THE WHOLE AREA.

(a) 0 *Metres–Temperature.*

Season.	1950/51.	1951/52.	1952/53.	1953/54.	1954/55.	1955/56.	1956/57.	Average.
Spring	15·49	14·47	15·95	14·41	14·47	14·36	14·65	14·83
Summer	15·67	16·63	15·78	15·71	15·53	15·41	16·66	15·91
Autumn	16·00	15·85	16·05	16·08	15·16	15·05	15·92	15·73
Winter	14·85	14·72	14·17	14·49	13·82	14·43	14·04	14·36

(b) 20 *Metres–Temperature.*

Spring	14·48	13·81	14·87	13·67	13·85	13·80	14·11	14·08
Summer	14·12	14·98	14·21	13·67	13·65	14·06	14·60	14·18
Autumn	14·81	14·27	14·65	14·53	13·82	14·04	14·62	14·39
Winter	14·67	14·25	13·93	14·35	13·52	14·11	13·97	14·11

(c) 0–50 *Metres–Temperature.*

Spring	14·37	13·74	14·71	13·61	13·76	13·76	13·94	13·98
Summer	13·95	14·86	13·88	13·63	13·53	13·88	14·25	14·00
Autumn	14·61	14·02	14·30	14·23	13·46	13·71	14·25	14·08
Winter	14·36	14·07	13·78	14·28	13·38	13·97	13·84	13·95

(d) 0 *Metres–Salinity.*

Spring	35·17	35·19	35·10	35·09	35·12	35·16	35·10	35·13
Summer	34·99	35·09	34·95	35·00	34·97	34·99	34·95	34·99
Autumn	35·04	35·05	34·95	35·05	35·01	35·01	35·00	35·02
Winter	35·13	35·11	35·09	35·12	35·00	35·14	35·01	35·09

(e) 20 *Metres–Salinity.*

Spring	35·14	35·18	35·13	35·07	35·12	35·15	35·11	35·13
Summer	34·97	35·11	34·96	34·97	34·97	35·01	34·97	34·99
Autumn	35·02	35·02	34·97	35·05	34·99	35·02	35·00	35·01
Winter	35·13	35·10	35·09	35·15	35·03	35·15	35·03	35·10

(f) 0–50 *Metres–Salinity.*

Spring	35·15	35·19	35·13	35·08	35·13	35·15	35·12	35·14
Summer	34·98	35·11	34·96	34·99	34·98	35·01	34·97	35·00
Autumn	35·04	35·02	34·97	35·04	34·98	35·01	35·00	35·01
Winter	35·15	35·10	35·10	35·17	35·04	35·15	35·03	35·11

TABLE 16.—SEASONAL TEMPERATURE AND SALINITY VALUES FOR THE OUTER AREA.

(a) 0 *Metres–Temperature.*

Season.	1950/51.	1951/52.	1952/53.	1953/54.	1954/55.	1955/56.	1956/57.	Average.
Spring	16·75	15·31	16·41	16·22	15·79	15·43	16·18	16·01
Summer	17·27	18·70	18·04	18·09	17·05	17·52	18·91	17·94
Autumn	18·47	18·16	17·14	17·97	16·65	16·95	17·85	17·60
Winter	16·41	16·31	15·18	15·23	14·88	15·64	15·63	15·61

(b) 20 *Metres–Temperature.*

Spring	16·35	15·12	16·10	15·83	15·68	15·36	16·12	15·79
Summer	16·34	18·17	17·16	16·74	16·11	16·77	18·09	17·05
Autumn	17·98	17·31	16·45	17·13	16·10	16·69	17·25	16·99
Winter	16·30	16·10	15·06	15·13	14·81	15·40	15·55	15·48

(c) 0–50 *Metres–Temperature.*

Spring	16·22	15·11	15·95	15·75	15·50	15·33	15·96	15·69
Summer	15·95	17·60	16·38	16·43	15·65	16·29	17·23	16·50
Autumn	17·70	16·72	16·05	16·65	15·41	15·87	16·67	16·44
Winter	16·15	15·91	15·06	15·10	14·74	15·31	15·43	15·39

(d) 0 *Metres–Salinity.*

Spring	35·39	35·41	35·33	35·31	35·36	35·36	35·39	35·36
Summer	35·23	35·38	35·21	35·33	35·26	35·28	35·25	35·28
Autumn	35·37	35·33	35·15	35·34	35·21	35·27	35·23	35·27
Winter	35·43	35·35	35·31	35·30	35·24	35·34	35·23	35·31

(e) 20 *Metres–Salinity.*

Spring	35·37	35·41	35·32	35·31	35·35	35·36	35·38	35·36
Summer	35·19	35·38	35·20	35·28	35·21	35·26	35·25	35·25
Autumn	35·36	35·30	35·16	35·33	35·19	35·26	35·21	35·26
Winter	35·42	35·34	35·30	35·30	35·22	35·34	35·23	35·31

(f) 0–50 *Metres–Salinity.*

Spring	35·37	35·41	35·33	35·30	35·35	35·36	35·38	35·36
Summer	35·19	35·37	35·19	35·28	35·21	35·24	35·24	35·25
Autumn	35·34	35·27	35·15	35·30	35·15	35·21	35·20	35·23
Winter	35·41	35·32	35·31	35·30	35·22	35·32	35·22	35·30

TOBLE 17.—SEASONAL TEMPERATURE AND SALINITY VALUES IN THE INTERMEDIATE AREA.

(a) 0 *Metres–Temperature.*

Season.	1950/51.	1951/52.	1952/53.	1953/54.	1954/55.	1955/56.	1956/57.	Average.
Spring	15·70	14·71	16·09	14·80	14·92	14·83	14·88	15·13
Summer	15·94	17·03	15·68	15·72	15·29	15·75	16·53	15·99
Autumn	15·70	15·79	16·25	16·19	15·50	15·30	16·31	15·86
Winter	14·79	15·09	14·45	14·54	14·07	14·81	14·46	14·60

(b) 20 *Metres–Temperature.*

Spring	14·96	14·41	15·38	14·16	14·59	14·36	14·65	14·64
Summer	14·72	15·59	14·65	14·06	14·21	14·94	14·88	14·72
Autumn	14·71	14·36	15·10	14·79	14·58	14·76	15·36	14·81
Winter	14·67	14·69	14·29	14·54	13·89	14·54	14·43	14·44

(c) 0–50 *Metres–Temperature.*

Spring	14·69	14·31	15·07	13·95	14·31	14·23	14·29	14·41
Summer	14·25	15·18	13·98	13·64	13·74	14·35	14·12	14·18
Autumn	14·30	13·72	14·47	14·10	13·78	14·12	14·53	14·15
Winter	14·35	14·29	14·04	14·46	13·62	14·28	14·19	14·18

(d) 0 *Metres–Salinity.*

Spring	35·22	35·26	35·16	35·14	35·22	35·24	35·15	35·20
Summer	35·00	35·13	34·93	34·97	34·95	35·03	34·91	34·99
Autumn	35·02	35·04	34·98	35·07	35·03	35·05	35·05	35·03
Winter	35·20	35·19	35·17	35·18	35·13	35·25	35·12	35·18

(e) 20 *Metres–Salinity.*

Spring	35·19	35·26	35·18	35·13	35·21	35·23	35·15	35·19
Summer	34·99	35·17	34·94	34·94	34·98	35·06	34·95	35·00
Autumn	35·01	35·01	34·98	35·07	35·02	35·06	35·05	35·03
Winter	35·20	35·18	35·16	35·20	35·11	35·24	35·14	35·18

(f) 0–50 *Metres–Salinity.*

Spring	35·18	35·26	35·16	35·12	35·20	35·21	35·15	35·18
Summer	34·99	35·14	34·95	34·95	34·99	35·04	34·94	35·00
Autumn	35·02	34·99	34·98	35·03	35·00	35·04	35·02	35·01
Winter	35·19	35·14	35·14	35·20	35·09	35·21	35·10	35·15

TABLE 18.—SEASONAL TEMPERATURE AND SALINITY VALUES FOR THE COASTAL AREA.

(a) 0 *Metres–Temperature.*

Season.	1950/51.	1951/52.	1952/53.	1953/54.	1954/55.	1955/56.	1956/57.	Average.
Spring	14·21	13·50	15·40	12·48	12·89	13·00	13·13	13·52
Summer	14·02	14·46	13·95	13·65	14·48	13·26	14·86	14·10
Autumn	14·18	13·94	14·91	14·36	13·54	13·16	13·87	13·99
Winter	13·58	13·00	13·04	13·81	12·67	13·02	12·26	13·05

(b) 20 *Metres–Temperature.*

Spring	12·41	12·08	13·29	11·34	11·54	11·91	11·85	12·06
Summer	11·63	11·64	11·25	10·65	10·98	10·84	11·32	11·19
Autumn	12·19	11·57	12·65	12·04	11·10	11·05	11·62	11·75
Winter	13·18	12·22	12·60	13·48	12·05	12·57	12·17	12·61

(c) 0–50 *Metres–Temperature.*

Spring	12·15	11·72	13·07	10·07	11·33	11·64	11·49	11·64
Summer	11·62	11·74	11·26	10·80	11·15	10·92	11·44	11·28
Autumn	11·88	11·67	12·35	11·98	11·14	11·06	11·52	11·66
Winter	12·59	11·98	12·20	13·25	11·73	12·29	11·85	12·27

(d) 0 *Metres–Salinity.*

Spring	34·92	34·91	34·84	34·84	34·81	34·90	34·80	34·86
Summer	34·76	34·80	34·75	34·75	34·74	34·70	34·73	34·75
Autumn	34·77	34·80	34·76	34·77	34·81	34·74	34·75	34·77
Winter	34·80	34·83	34·83	34·91	34·67	34·86	34·74	34·81

(e) 20 *Metres–Salinity.*

Spring	34·89	34·89	34·91	34·81	34·82	34·89	34·84	34·86
Summer	34·75	34·83	34·76	34·74	34·74	34·75	34·75	34·76
Autumn	34·74	34·80	34·78	34·80	34·77	34·79	34·78	34·78
Winter	34·82	34·83	34·84	34·97	34·79	34·89	34·75	34·84

(f) 0–50 *Metres–Salinity.*

Spring	34·88	34·88	34·90	34·82	34·82	34·88	34·83	34·86
Summer	34·76	34·82	34·76	34·74	34·74	34·74	34·74	34·76
Autumn	34·76	34·79	34·78	34·78	34·79	34·76	34·77	34·78
Winter	34·85	34·84	34·85	35·00	34·80	34·89	34·76	34·86

TABLE 19.—DEVIATION OF SEASONAL TEMPERATURE AND SALINITY FROM THE SEASONAL AVERAGE FOR THE WHOLE AREA.

(a) 0 *Metres–Temperature.*

Season.	1950/51.	1951/52.	1952/53.	1953/54.	1954/55.	1955/56.	1956/57.
Spring	+ 0·66	− 0·36	+ 1·12	− 0·42	− 0·36	− 0·47	− 0·18
Summer	− 0·24	+ 0·72	− 0·13	− 0·20	− 0·38	− 0·50	+ 0·75
Autumn	+ 0·27	+ 0·12	+ 0·32	+ 0·35	− 0·57	− 0·68	+ 0·19
Winter	+ 0·49	+ 0·36	− 0·19	+ 0·13	− 0·54	+ 0·07	− 0·32

(b) 20 *Metres–Temperature.*

Spring	+ 0·40	− 0·27	+ 0·79	− 0·41	− 0·23	− 0·28	+ 0·03
Summer	− 0·06	+ 0·80	+ 0·03	− 0·51	− 0·53	− 0·12	+ 0·42
Autumn	+ 0·42	− 0·12	+ 0·26	+ 0·14	− 0·57	− 0·35	+ 0·23
Winter	+ 0·56	+ 0·14	− 0·18	+ 0·24	− 0·59	0·00	− 0·14

(c) 0–50 *Metres–Temperature.*

Spring	+ 0·39	− 0·24	+ 0·73	− 0·37	− 0·22	− 0·22	− 0·04
Summer	− 0·05	+ 0·86	− 0·12	− 0·37	− 0·47	− 0·12	+ 0·25
Autumn	+ 0·53	− 0·06	+ 0·22	+ 0·15	− 0·62	− 0·37	+ 0·17
Winter	+ 0·41	+ 0·12	− 0·17	+ 0·33	− 0·57	+ 0·02	− 0·11

(d) 0 *Metres–Salinity.*

Spring	+ 0·04	+ 0·06	− 0·03	− 0·04	− 0·01	+ 0·03	− 0·03
Summer	0·00	+ 0·10	0·04	− 0·01	0·02	0·00	− 0·04
Autumn	+ 0·02	+ 0·03	− 0·07	+ 0·03	− 0·01	− 0·01	− 0·02
Winter	+ 0·04	+ 0·02	0·00	+ 0·03	− 0·09	+ 0·05	− 0·08

(e) 20 *Metres–Salinity.*

Spring	+ 0·01	+ 0·05	0·00	− 0·06	− 0·01	+ 0·02	− 0·02
Summer	− 0·02	+ 0·12	− 0·03	− 0·02	− 0·02	+ 0·02	− 0·02
Autumn	+ 0·01	+ 0·01	− 0·04	+ 0·04	− 0·02	+ 0·01	− 0·01
Winter	+ 0·03	0·00	− 0·01	+ 0·05	− 0·07	+ 0·05	− 0·07

(f) 0–50 *Metres–Salinity.*

Spring	− 0·01	+ 0·05	− 0·01	− 0·06	− 0·01	+ 0·01	− 0·02
Summer	− 0·02	+ 0·11	− 0·04	− 0·01	− 0·02	+ 0·01	− 0·03
Autumn	+ 0·03	+ 0·01	− 0·04	+ 0·03	− 0·03	0·00	− 0·01
Winter	+ 0·04	− 0·01	− 0·01	+ 0·06	− 0·07	+ 0·04	− 0·08

TABLE 20.—DEVIATION OF SEASONAL TEMPERATURE AND SALINITY FROM THE SEASONAL AVERAGE FOR THE OUTER AREA.

(a) 0 *Metres–Temperature.*

Season.	1950/51.	1951/52.	1952/53.	1953/54.	1954/55.	1955/56.	1956/57.
Spring	+ 0·74	− 0·70	+ 0·40	+ 0·21	− 0·22	− 0·58	+ 0·17
Summer	− 0·67	+ 0·76	+ 0·10	+ 0·15	− 0·89	− 0·42	+ 0·97
Autumn	+ 0·87	+ 0·56	− 0·46	+ 0·37	− 0·95	− 0·65	+ 0·25
Winter	+ 0·80	+ 0·70	− 0·43	− 0·38	− 0·73	+ 0·03	+ 0·02

(b) 20 *Metres–Temperature.*

Spring	+ 0·56	− 0·67	+ 0·31	+ 0·04	− 0·11	− 0·43	+ 0·33
Summer	− 0·71	+ 1·12	+ 0·11	− 0·31	− 0·94	− 0·28	+ 1·04
Autumn	+ 0·99	+ 0·32	− 0·54	+ 0·14	− 0·89	− 0·30	+ 0·26
Winter	+ 0·82	+ 0·62	− 0·42	− 0·35	− 0·67	− 0·08	+ 0·07

(c) 0–50 *Metres–Temperature.*

Spring	+ 0·53	− 0·58	+ 0·26	+ 0·06	− 0·19	− 0·36	+ 0·27
Summer	− 0·55	+ 1·10	− 0·12	− 0·07	− 0·85	− 0·21	+ 0·73
Autumn	+ 1·26	+ 0·28	− 0·39	+ 0·21	− 1·03	− 0·57	+ 0·23
Winter	+ 0·76	+ 0·52	− 0·33	− 0·29	− 0·65	− 0·08	+ 0·04

(d) 0 *Metres–Salinity.*

Spring	+ 0·03	+ 0·05	− 0·03	− 0·05	0·00	0·00	+ 0·03
Summer	− 0·05	+ 0·10	− 0·07	+ 0·05	− 0·02	0·00	− 0·03
Autumn	+ 0·10	+ 0·06	− 0·12	+ 0·07	− 0·06	0·00	− 0·04
Winter	+ 0·12	+ 0·04	0·00	− 0·01	− 0·07	+ 0·03	− 0·08

(e) 20 *Metres–Salinity.*

Spring	+ 0·01	+ 0·05	− 0·04	− 0·05	− 0·01	0·00	+ 0·02
Summer	− 0·06	+ 0·13	− 0·05	+ 0·03	− 0·04	+ 0·01	0·00
Autumn	+ 0·10	+ 0·04	− 0·10	+ 0·07	− 0·07	0·00	− 0·05
Winter	+ 0·11	+ 0·03	− 0·01	− 0·01	− 0·09	+ 0·03	− 0·08

(f) 0–50 *Metres–Salinity.*

Spring	+ 0·01	+ 0·05	− 0·03	− 0·06	− 0·01	0·00	+ 0·02
Summer	− 0·06	+ 0·12	− 0·06	+ 0·03	− 0·04	− 0·01	− 0·01
Autumn	+ 0·11	+ 0·04	− 0·08	+ 0·07	− 0·08	− 0·02	− 0·03
Winter	+ 0·11	+ 0·02	+ 0·01	0·00	− 0·08	+ 0·02	− 0·08

TABLE 21.—DEVIATION OF SEASONAL TEMPERATURE AND SALINITY FROM THE SEASONAL AVERAGE FOR THE INTERMEDIATE AREA.

(a) 0 *Metres–Temperature.*

Season.	1950/51.	1951/52.	1952/53.	1953/54.	1954/55.	1955/56.	1956/57.
Spring	+ 0·57	− 0·42	+ 0·96	− 0·33	− 0·21	− 0·30	− 0·25
Summer	− 0·05	+ 1·04	− 0·31	− 0·27	− 0·70	− 0·24	+ 0·54
Autumn	− 0·16	− 0·07	+ 0·39	+ 0·33	− 0·36	− 0·56	+ 0·45
Winter	+ 0·19	+ 0·49	− 0·15	− 0·06	− 0·53	+ 0·21	− 0·14

(b) 20 *Metres–Temperature.*

Spring	+ 0·32	− 0·23	+ 0·74	− 0·48	− 0·05	− 0·28	+ 0·01
Summer	0·00	+ 0·87	− 0·07	− 0·66	− 0·51	+ 0·22	+ 0·16
Autumn	− 0·10	− 0·45	+ 0·29	− 0·02	− 0·23	− 0·05	+ 0·55
Winter	+ 0·23	+ 0·25	− 0·15	+ 0·10	− 0·55	+ 0·10	− 0·01

(c) 0–50 *Metres–Temperature.*

Spring	+ 0·28	− 0·10	+ 0·66	− 0·46	− 0·10	− 0·18	− 0·12
Summer	+ 0·07	+ 1·00	− 0·20	− 0·54	− 0·44	+ 0·17	− 0·06
Autumn	+ 0·15	− 0·43	+ 0·32	− 0·05	− 0·37	− 0·03	+ 0·38
Winter	+ 0·17	+ 0·11	− 0·14	+ 0·28	− 0·56	+ 0·10	+ 0·01

(d) 0 *Metres–Salinity.*

Spring	+ 0·02	+ 0·06	− 0·04	− 0·06	+ 0·02	+ 0·04	− 0·05
Summer	+ 0·01	+ 0·14	− 0·06	− 0·02	− 0·04	+ 0·04	− 0·08
Autumn	− 0·01	+ 0·01	− 0·05	+ 0·04	0·00	+ 0·02	+ 0·02
Winter	+ 0·02	+ 0·01	− 0·01	0·00	− 0·05	+ 0·07	− 0·06

(e) 20 *Metres–Salinity.*

Spring	0·00	+ 0·07	− 0·01	− 0·06	+ 0·02	+ 0·04	− 0·04
Summer	− 0·01	+ 0·17	− 0·06	− 0·06	− 0·02	+ 0·06	− 0·05
Autumn	− 0·02	− 0·02	− 0·05	+ 0·04	− 0·01	+ 0·03	+ 0·02
Winter	+ 0·02	0·00	− 0·02	+ 0·02	− 0·07	+ 0·06	− 0·04

(f) 0–50 *Metres–Salinity.*

Spring	0·00	+ 0·08	− 0·02	− 0·06	+ 0·02	+ 0·03	− 0·03
Summer	− 0·01	+ 0·14	− 0·05	− 0·05	− 0·01	+ 0·04	− 0·06
Autumn	+ 0·01	− 0·02	− 0·03	+ 0·02	− 0·01	+ 0·03	+ 0·01
Winter	+ 0·04	− 0·01	− 0·01	+ 0·05	− 0·06	+ 0·06	− 0·05

TABLE 22.—DEVIATION OF SEASONAL TEMPERATURE AND SALINITY FROM THE SEASONAL AVERAGE FOR THE COASTAL AREA.

(a) 0 *Metres–Temperature.*

Season.	1950/51.	1951/52.	1952/53.	1953/54.	1954/55.	1955/56.	1956/57.
Spring	+ 0·69	− 0·02	+ 1·88	− 1·04	− 0·63	− 0·52	− 0·39
Summer	− 0·08	+ 0·36	− 0·15	− 0·45	+ 0·38	− 0·84	+ 0·76
Autumn	+ 0·19	− 0·05	+ 0·92	+ 0·37	− 0·45	− 0·83	− 0·12
Winter	+ 0·53	− 0·05	− 0·01	+ 0·76	− 0·38	− 0·03	− 0·79

(b) 20 *Metres–Temperature.*

Spring	+ 0·35	+ 0·02	+ 1·23	− 0·72	− 0·52	− 0·15	− 0·21
Summer	+ 0·44	+ 0·45	+ 0·06	− 0·54	− 0·21	− 0·35	+ 0·13
Autumn	+ 0·44	− 0·18	+ 0·90	+ 0·29	− 0·65	− 0·70	− 0·13
Winter	+ 0·57	− 0·39	− 0·01	+ 0·87	− 0·56	− 0·04	− 0·44

(c) 0–50 *Metres–Temperature.*

Spring	+ 0·51	+ 0·08	+ 1·43	− 1·57	− 0·31	0·00	− 0·15
Summer	+ 0·34	+ 0·46	− 0·02	− 0·48	− 0·13	− 0·36	+ 0·16
Autumn	+ 0·22	+ 0·01	+ 0·69	+ 0·32	− 0·52	− 0·60	− 0·14
Winter	+ 0·32	− 0·29	− 0·07	+ 0·98	− 0·54	+ 0·02	− 0·42

(d) 0 *Metres–Salinity.*

Spring	+ 0·06	+ 0·05	− 0·02	− 0·02	− 0·05	+ 0·04	− 0·06
Summer	+ 0·01	+ 0·05	0·00	0·00	− 0·01	− 0·05	− 0·02
Autumn	0·00	+ 0·03	− 0·01	0·00	+ 0·04	− 0·03	− 0·02
Winter	− 0·01	+ 0·02	+ 0·02	+ 0·10	− 0·14	+ 0·05	− 0·07

(e) 20 *Metres–Salinity.*

Spring	+ 0·03	+ 0·03	+ 0·05	− 0·05	− 0·04	+ 0·03	− 0·02
Summer	− 0·01	+ 0·07	0·00	− 0·02	− 0·02	− 0·01	− 0·01
Autumn	− 0·04	+ 0·02	0·00	+ 0·02	− 0·01	+ 0·01	0·00
Winter	− 0·02	− 0·01	0·00	+ 0·13	− 0·05	+ 0·05	− 0·09

(f) 0–50 *Metres–Salinity.*

Spring	+ 0·02	+ 0·02	+ 0·04	− 0·04	− 0·04	+ 0·02	− 0·03
Summer	0·00	+ 0·06	0·00	− 0·02	− 0·02	− 0·02	− 0·02
Autumn	− 0·02	+ 0·01	0·00	0·00	+ 0·01	− 0·02	− 0·01
Winter	− 0·01	− 0·02	− 0·01	+ 0·14	− 0·06	+ 0·03	− 0·10

TABLE 23A.—PILCHARD SEASONAL CATCHES, 1950/57 (SHORT TONS).

Season.	1950/51.	1951/52.	1952/53.	1953/54.	1954/55.	1955/56.	1956/57.	Average.
Spring	24,450	9,806*	18,085*	15,466*	2,467*	15,628	8,035	13,420
Summer	4,893	15,053	18,442	5,038*	22,569	10,862	22,693	14,221
Autumn	34,481	102,797	94,937	61,502	74,017	47,599	51,231	66,652
Winter	63,216	51,799	22,254	28,263	22,260	17,672	10,926	30,913
Annual Catch	127,040	179,455	153,718	110,269	121,313	91,761	92,885	125,206
Average Seasonal Catch	31,760	44,864	38,430	27,567	30,328	22,940	23,221	31,301

TABLE 23B.—MAASBANKER SEASONAL CATCHES, 1950/57 (SHORT TONS).

Season.	1950/51.	1951/52.	1952/53.	1953/54.	1954/55.	1955/56.	1956/57.	Average.
Spring	5,457	15,515*	21,841*	4,396*	3,749*	2,606	6,166	8,533
Summer	40,706	46,360	43,825	42,871*	20,742	775	5,808	28,727
Autumn	37,802	24,623	19,759	49,424	44,070	12,628	48,583	33,841
Winter	19,343	20,366	29,150	33,718	19,774	30,080	36,248	26,954
Annual Catch	103,308	106,864	114,575	130,409	88,335	46,089	96,805	98,055
Average Seasonal Catch	25,827	26,716	28,644	32,602	22,084	11,522	24,201	25,302

* Catches affected by legislation.

TABLE 24.—ANNUAL CATCHES—DEVIATION FROM SEVEN-YEAR AVERAGE CATCH (SHORT TONS).

Year.	Pilchard.	Maasbanker.
1950/51	+ 1,834	+ 5,253
1951/52	+ 54,249	+ 8,809
1952/53	+ 28,512	+ 16,520
1953/54	− 14,937	+ 32,354
1954/55	− 3,893	+ 9,720
1955/56	− 33,445	− 51,966
1956/57	− 32,321	− 1,250
Average catch	125,206	98,055

TABLE 25.—DEVIATION OF SEASONAL CATCHES FROM AVERAGE SEASONAL CATCH (SHORT TONS).

A.—*Spring.*

Year.	Pilchard.	Maasbanker.
1950/51	+ 11,030	− 3,076
1951/52	− 3,614	+ 6,982
1952/53	+ 4,665	+ 13,308
1953/54	+ 2,046	− 4,137
1954/55	− 10,953	− 4,784
1955/56	+ 2,208	− 5,927
1956/57	− 5,385	− 2,367
Average	13,420	8,533

B.—*Summer.*

Year.	Pilchard.	Maasbanker.
1950/51	− 9,328	+ 11,979
1951/52	+ 832	+ 17,633
1952/53	+ 4,221	+ 15,098
1953/54	− 9,183	+ 14,144
1954/55	+ 8,348	− 7,895
1955/56	− 3,359	− 27,952
1956/57	+ 8,472	− 22,919
Average	14,221	28,727

C.—*Autumn.*

Year.	Pilchard.	Maasbanker.
1950/51	− 32,171	+ 3,961
1951/52	+ 36,145	− 9,218
1952/53	+ 28,285	− 14,082
1953/54	− 5,150	+ 15,583
1954/55	+ 7,365	+ 10,229
1955/56	− 19,053	− 21,213
1956/57	− 15,421	+ 14,742
Average	66,652	33,841

D.—*Winter.*

Year.	Pilchard.	Maasbanker.
1950/51	+ 32,303	− 7,611
1951/52	+ 20,886	− 6,588
1952/53	− 8,659	+ 2,196
1953/54	− 2,650	+ 6,764
1954/55	− 8,653	− 7,180
1955/56	− 13,241	+ 3,126
1956/57	− 19,987	+ 9,294
Average	30,913	26,954

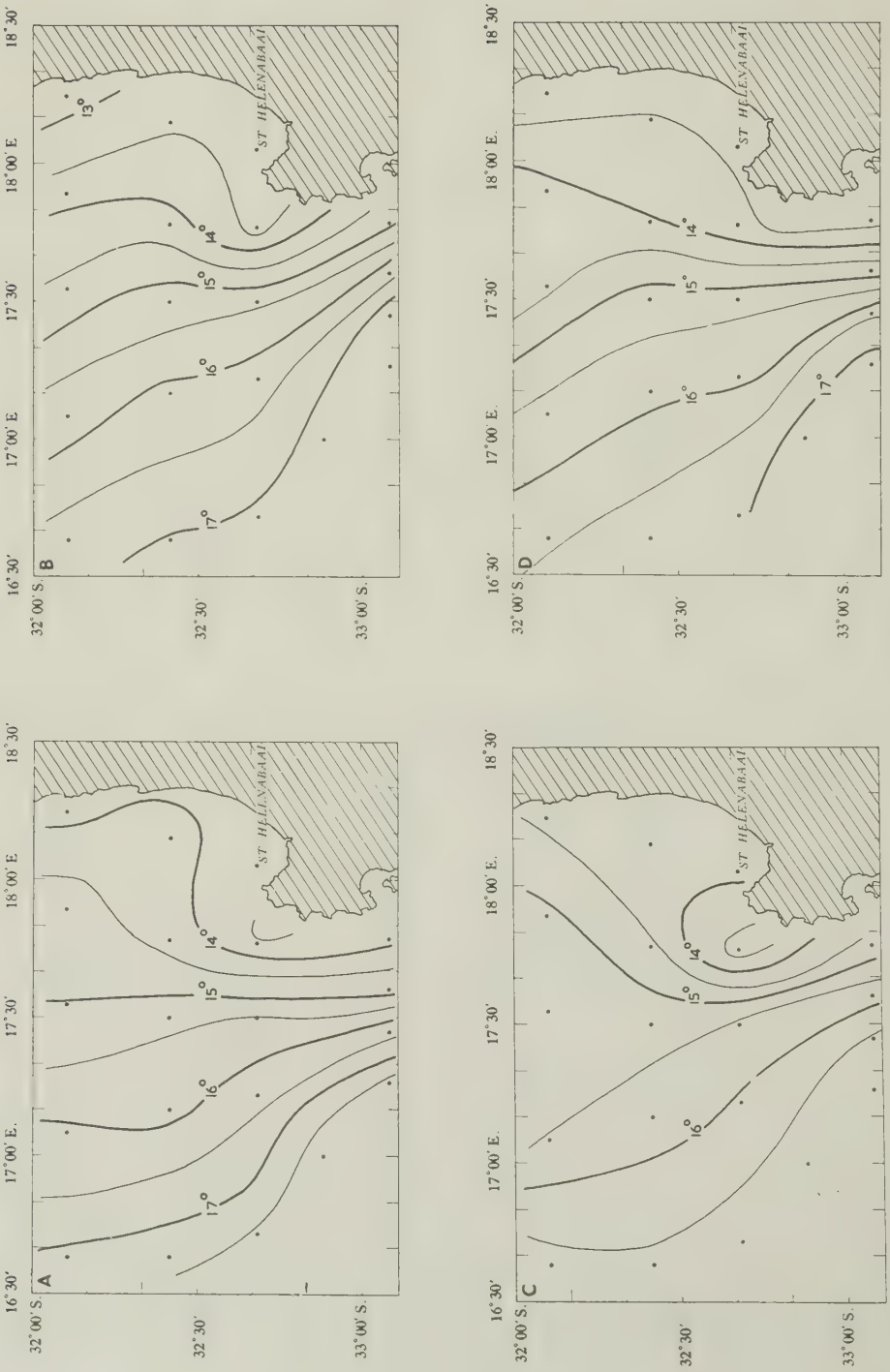

PLATE 1.—Average surface temperatures for the year September–August: (A) 1950/51, (B) 1951/52, (C) 1952/53, (D) 1953/54.

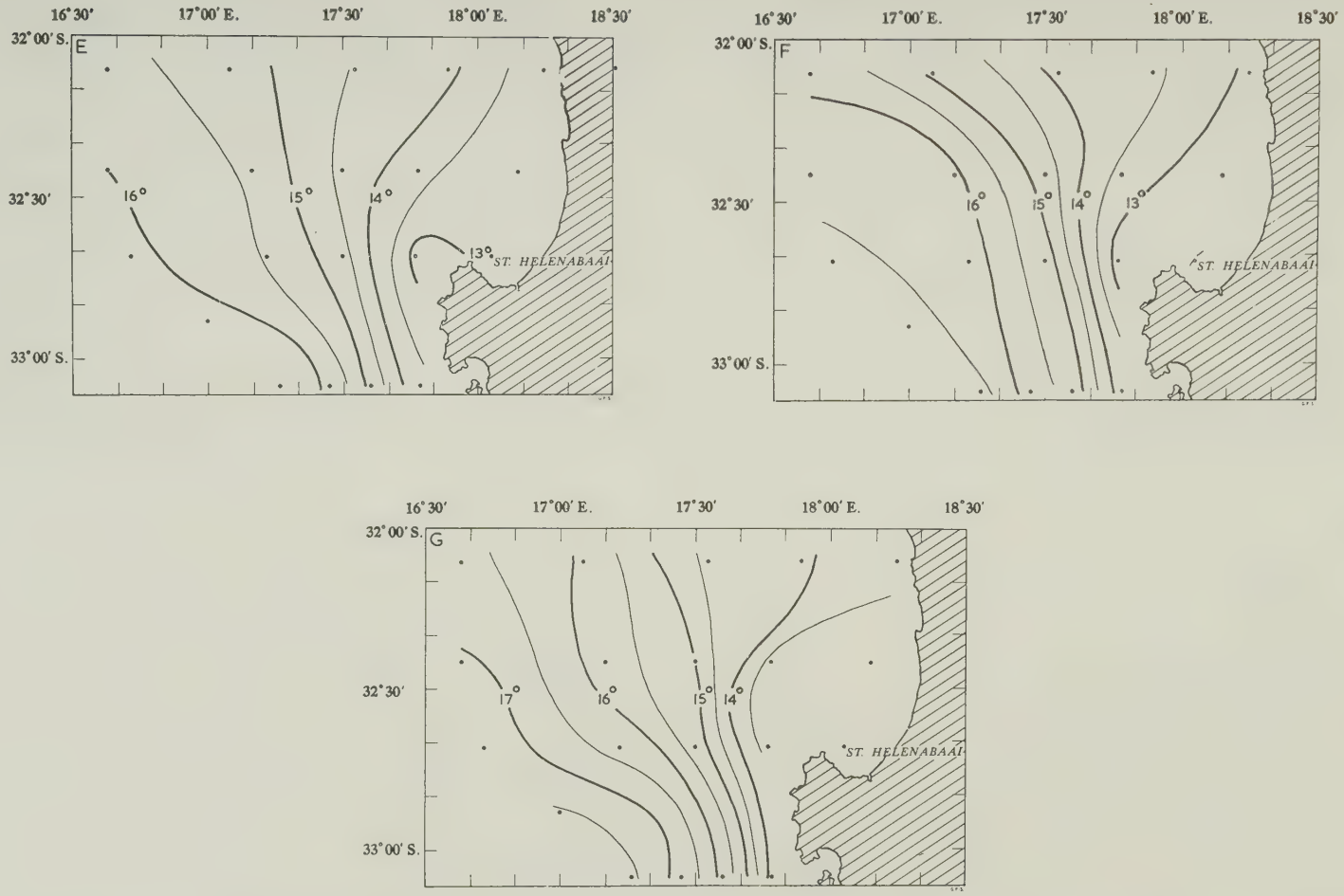

PLATE 1.—Average surface temperatures for the year September–August: (E) 1954/55, (F) 1955/56, (G) 1956/57.

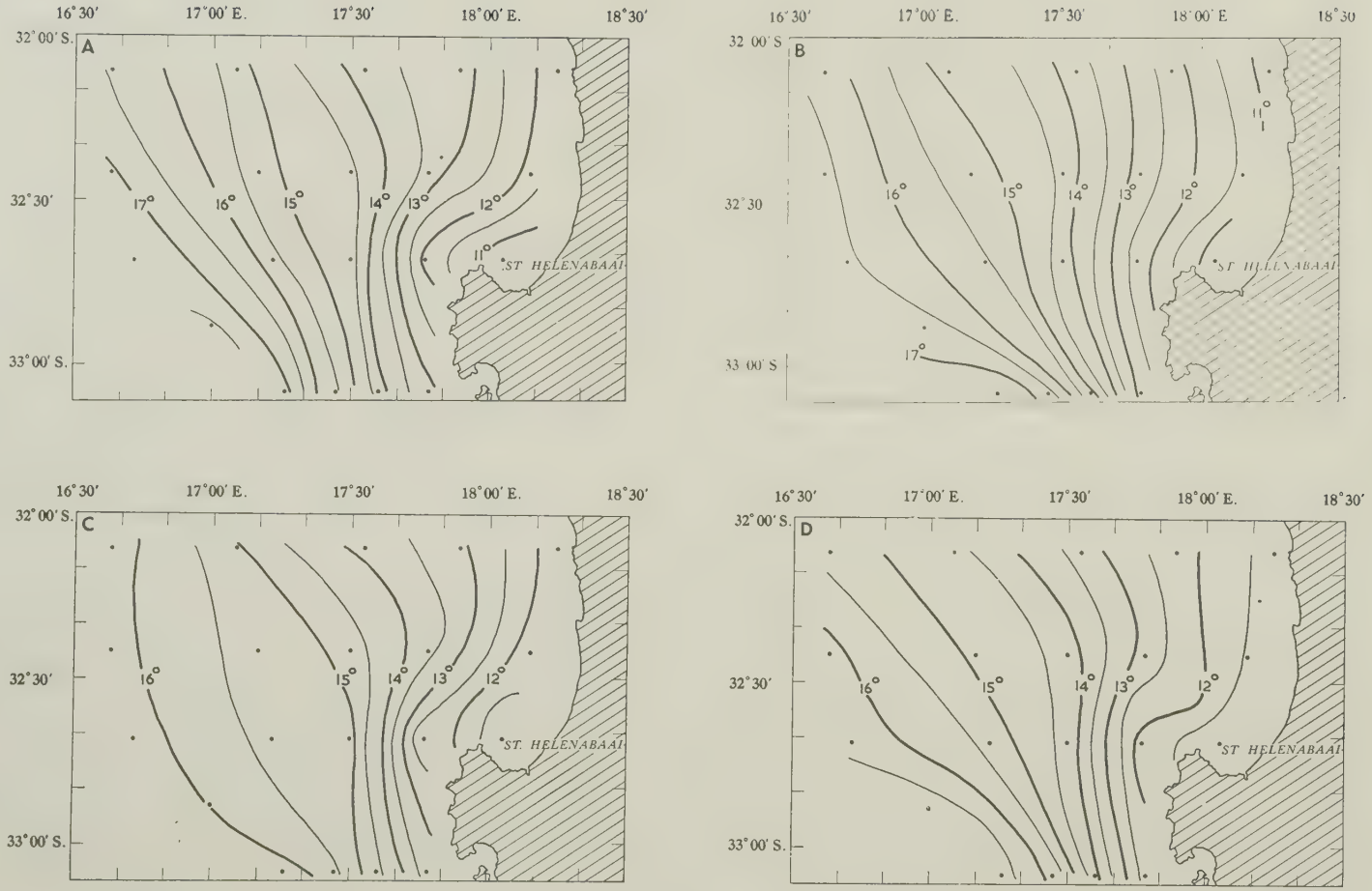

PLATE 2.—Average 20 metres temperatures for the year September–August: (A) 1950/51, (B) 1951/52, (C) 1952/53, (D) 1953/54.

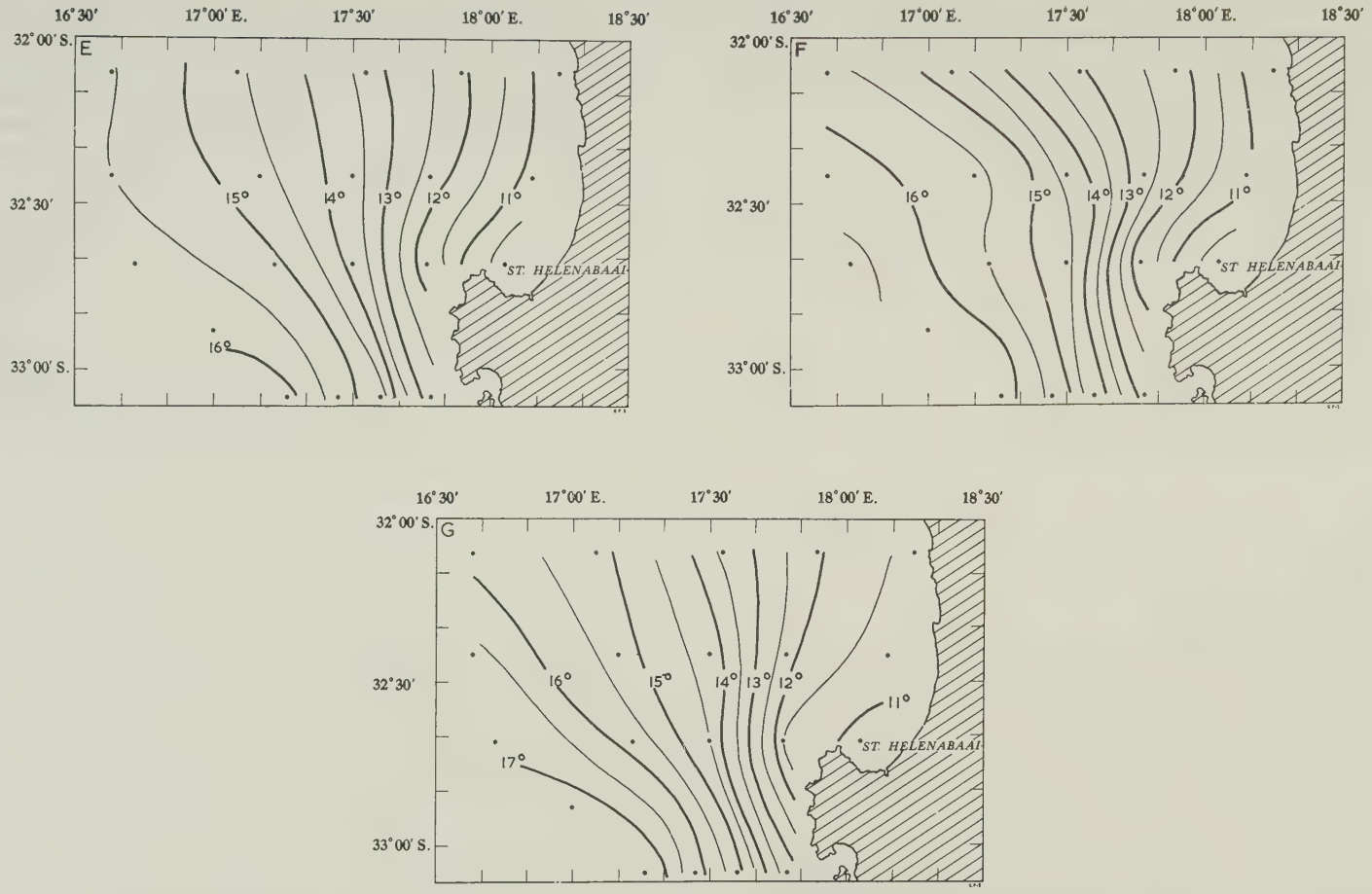

PLATE 2.—Average 20 metres temperatures for the year September–August: (E) 1954/55, (F) 1955/56, (G) 1956/57.

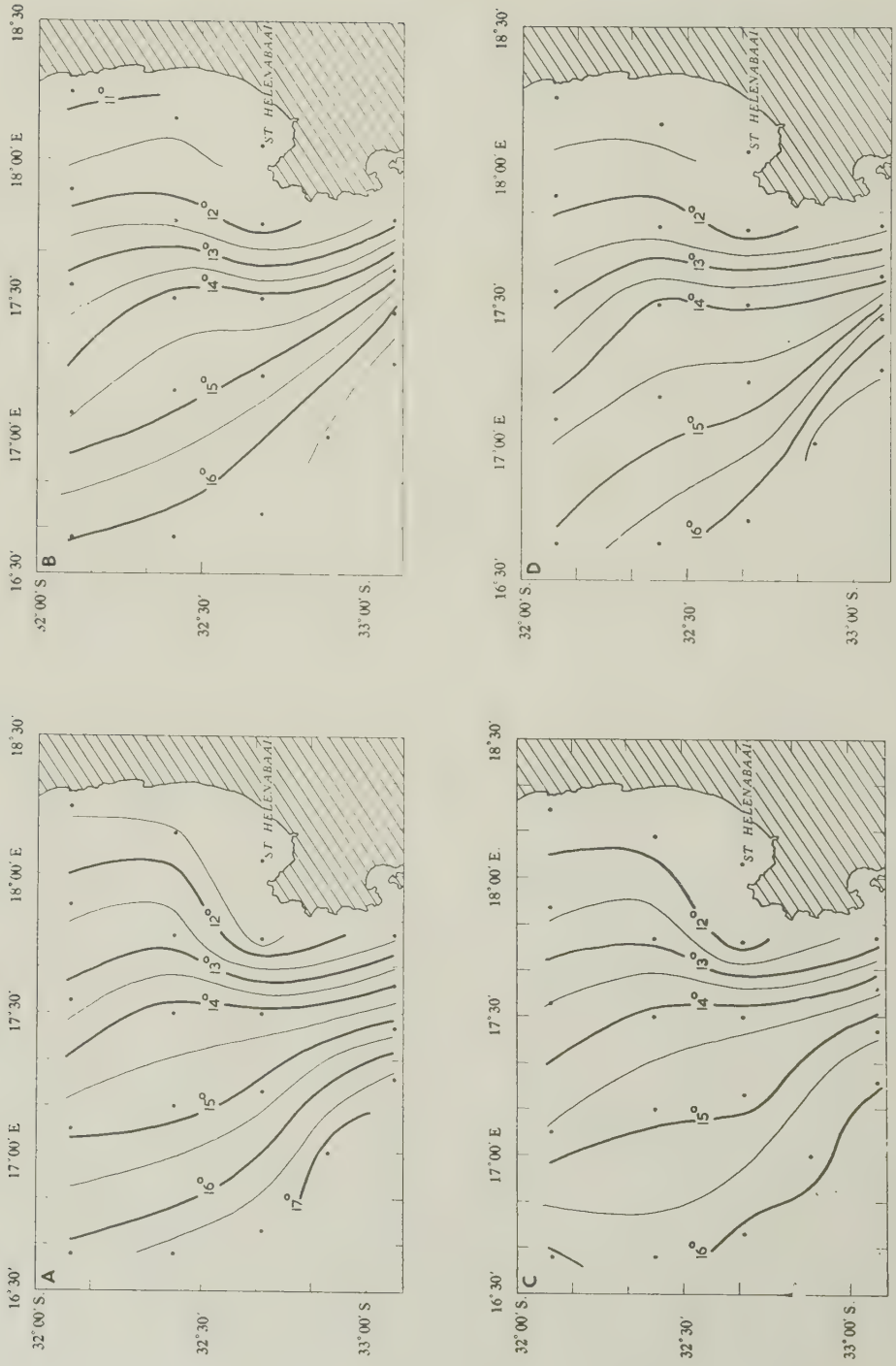

PLATE 3.—Average 0–50 metres mean integral temperatures for the year September–August: (A) 1950/51, (B) 1951/52, (C) 1952/53, (D) 1953/54.

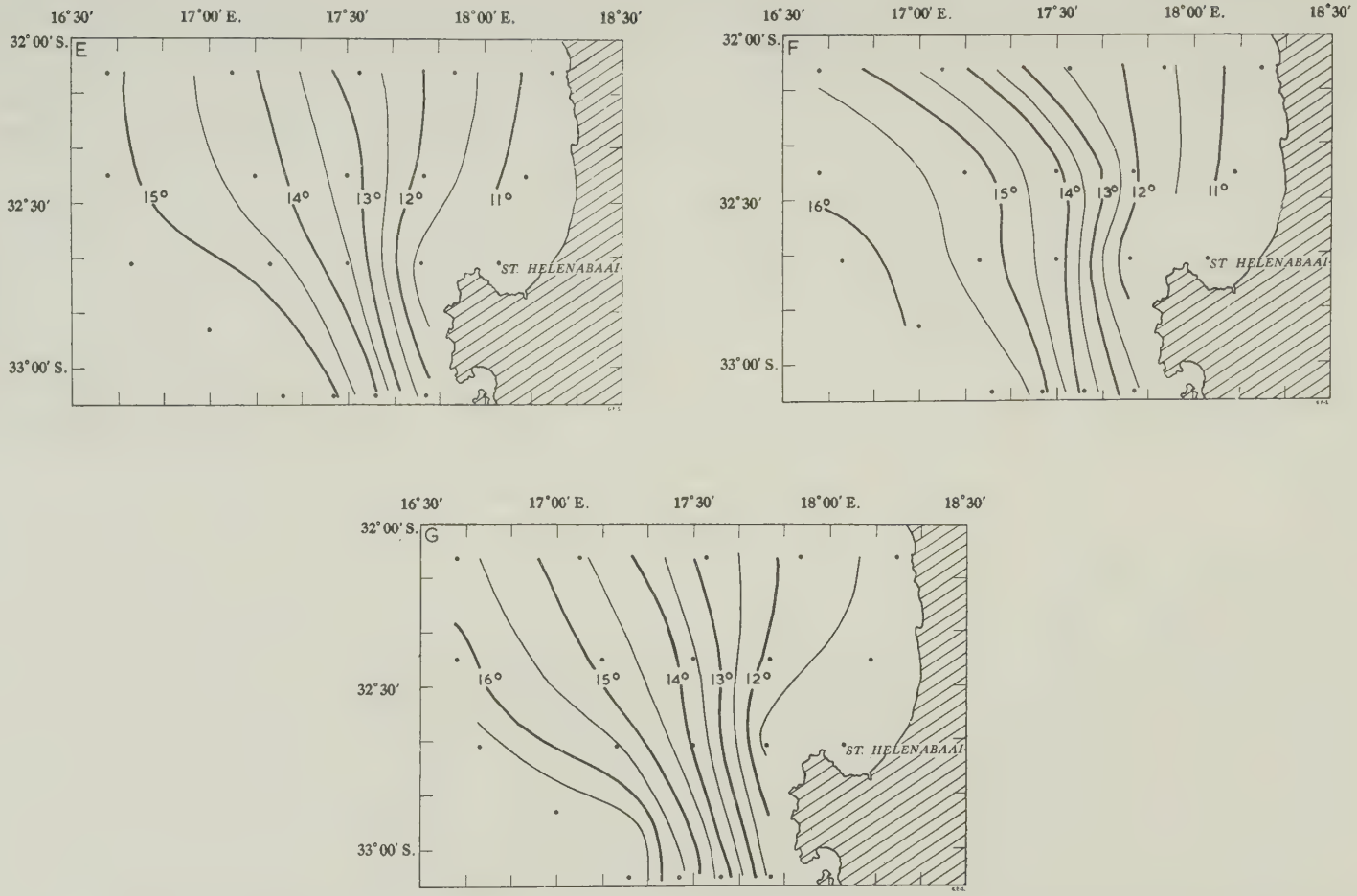

PLATE 3.—Average 0–50 metres mean integral temperatures for the year September–August: (E) 1954/55, (F) 1955/56, (G) 1956/57.

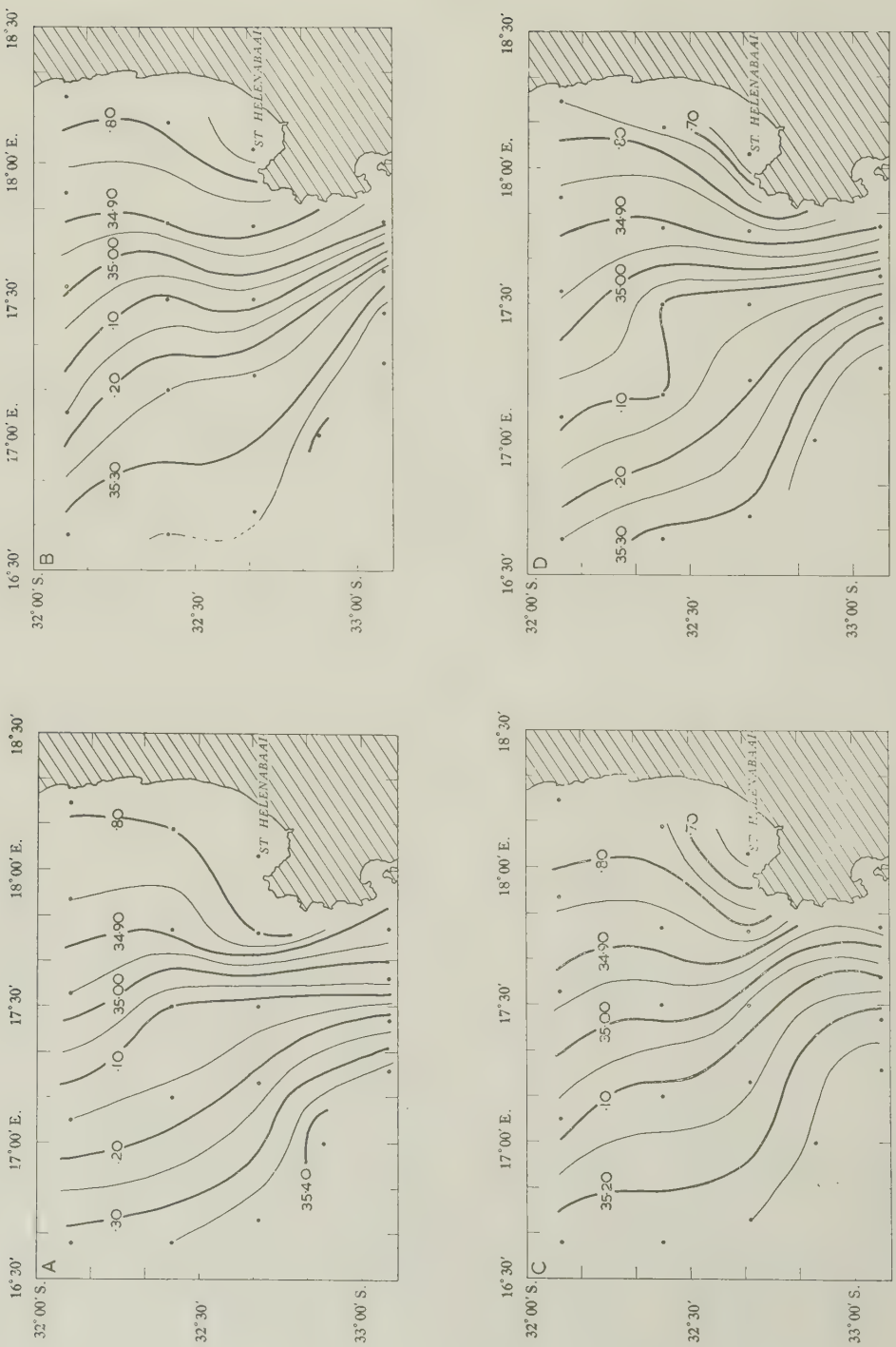

PLATE 4.—Average surface salinity for the year September–August: (A) 1950/51, (B) 1951/52, (C) 1952/53, (D) 1953/54.

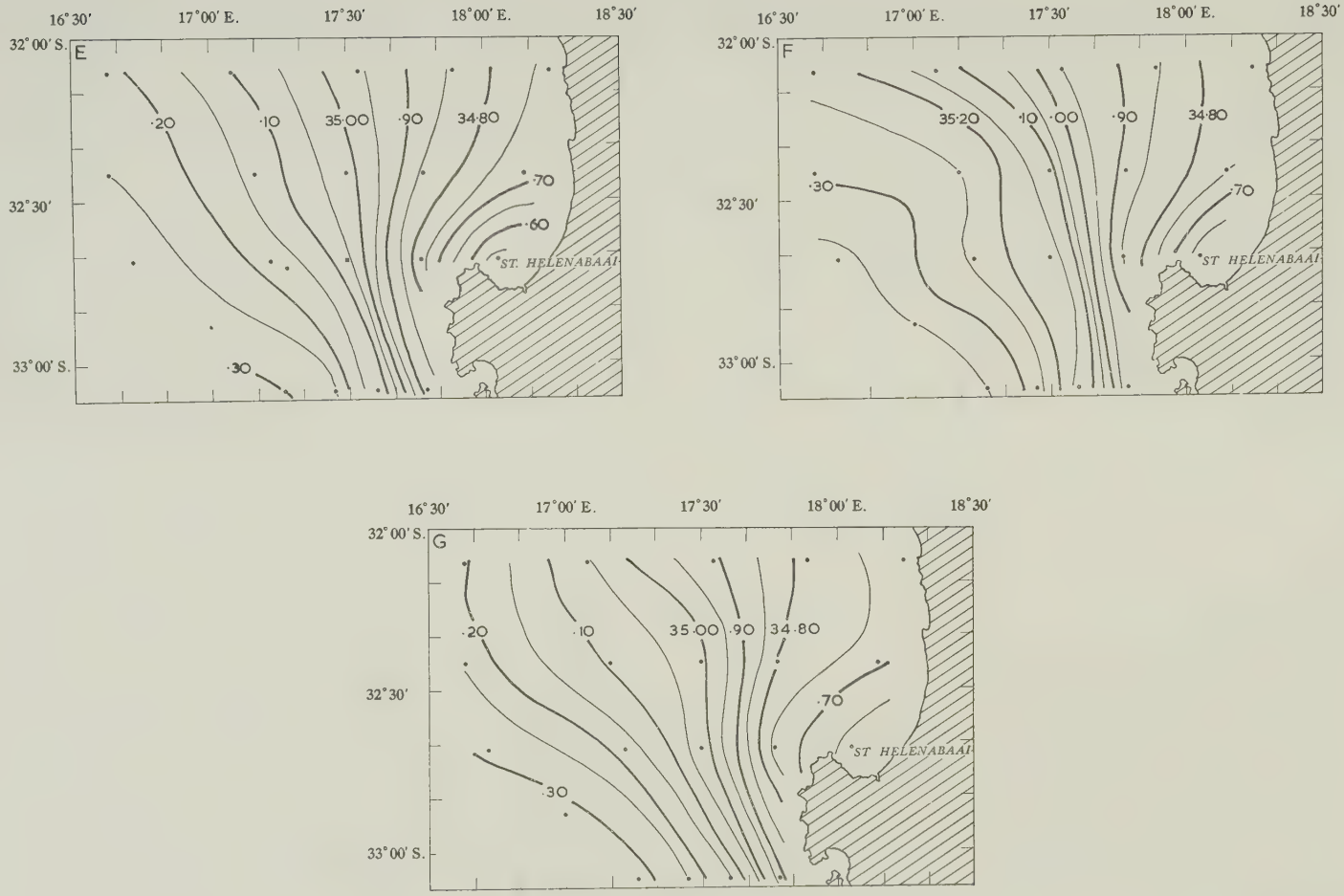

PLATE 4.—Average surface salinity for the year September–August: (E) 1954/55, (F) 1955/56, (G) 1956/57.

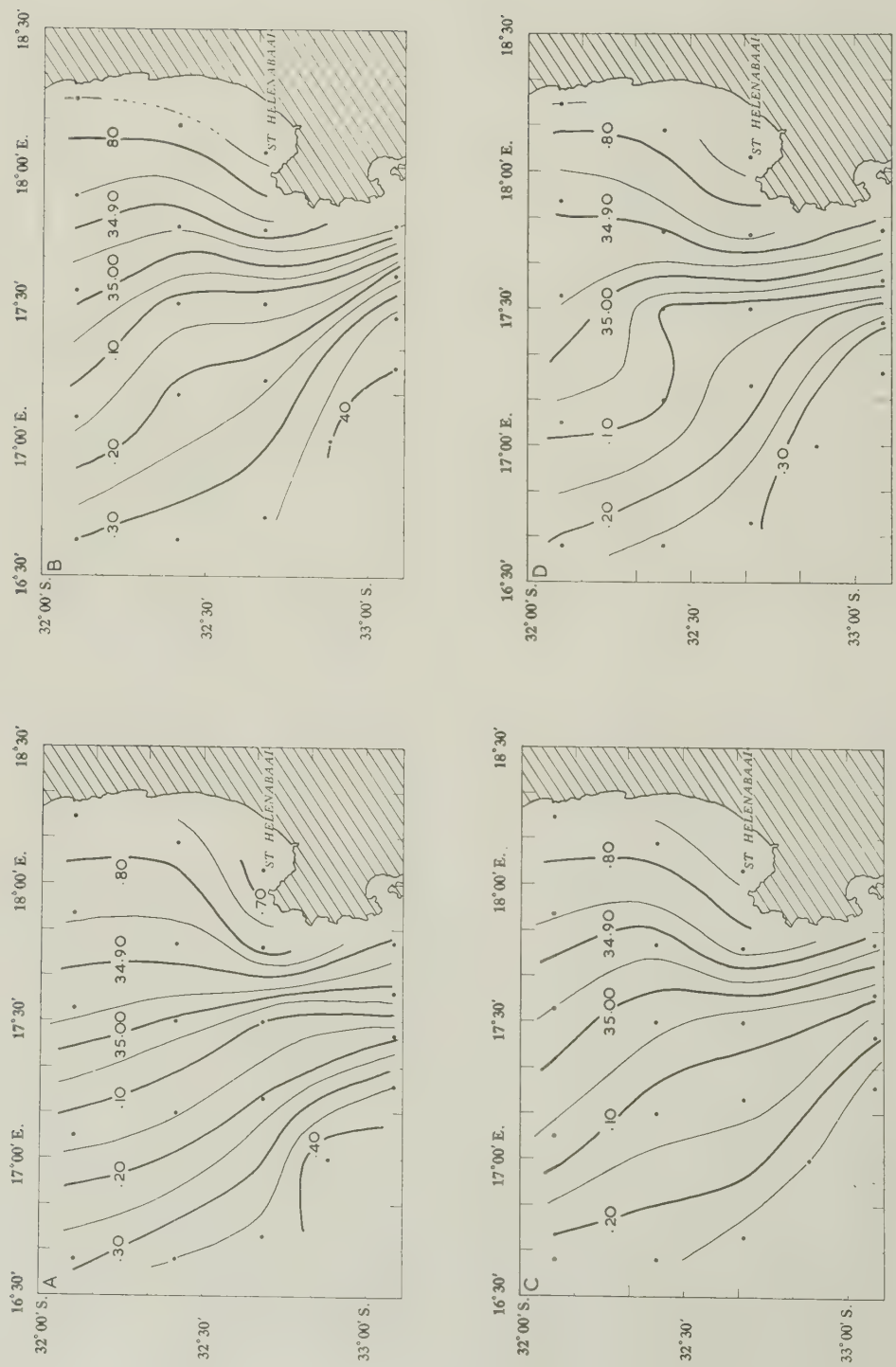

PLATE 5.—Average 20 metres salinity for the year September-August: (A) 1950/51, (B) 1951/52, (C) 1952/53, (D) 1953/54.

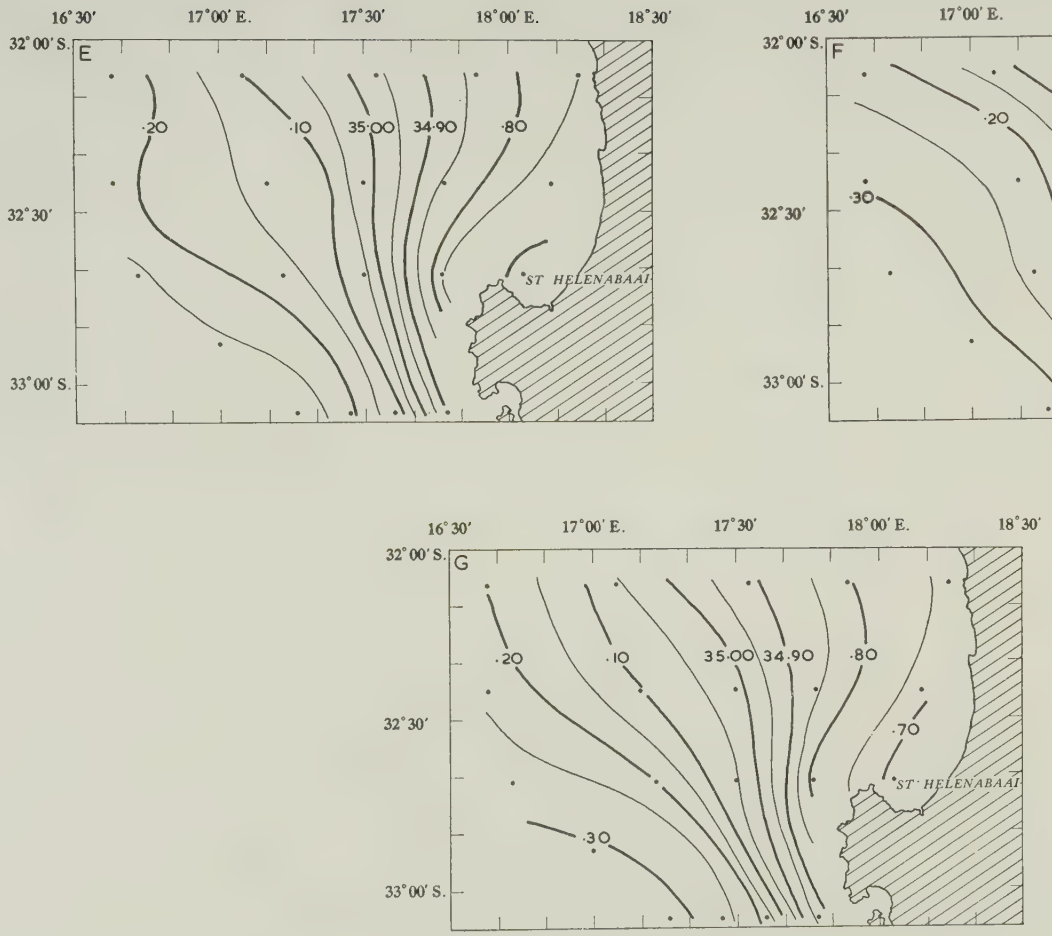

PLATE 5.—Average 20 metres salinity for the year September–August: (E) 1954/55, (F) 1955/56, (G) 1956/57.

PLATE 6.—Average mean integral salinities for the 0–50 metres layer for the year September–August. (A) 1950/51, (B) 1951/52, (C) 1952/53, (D) 1953/54.

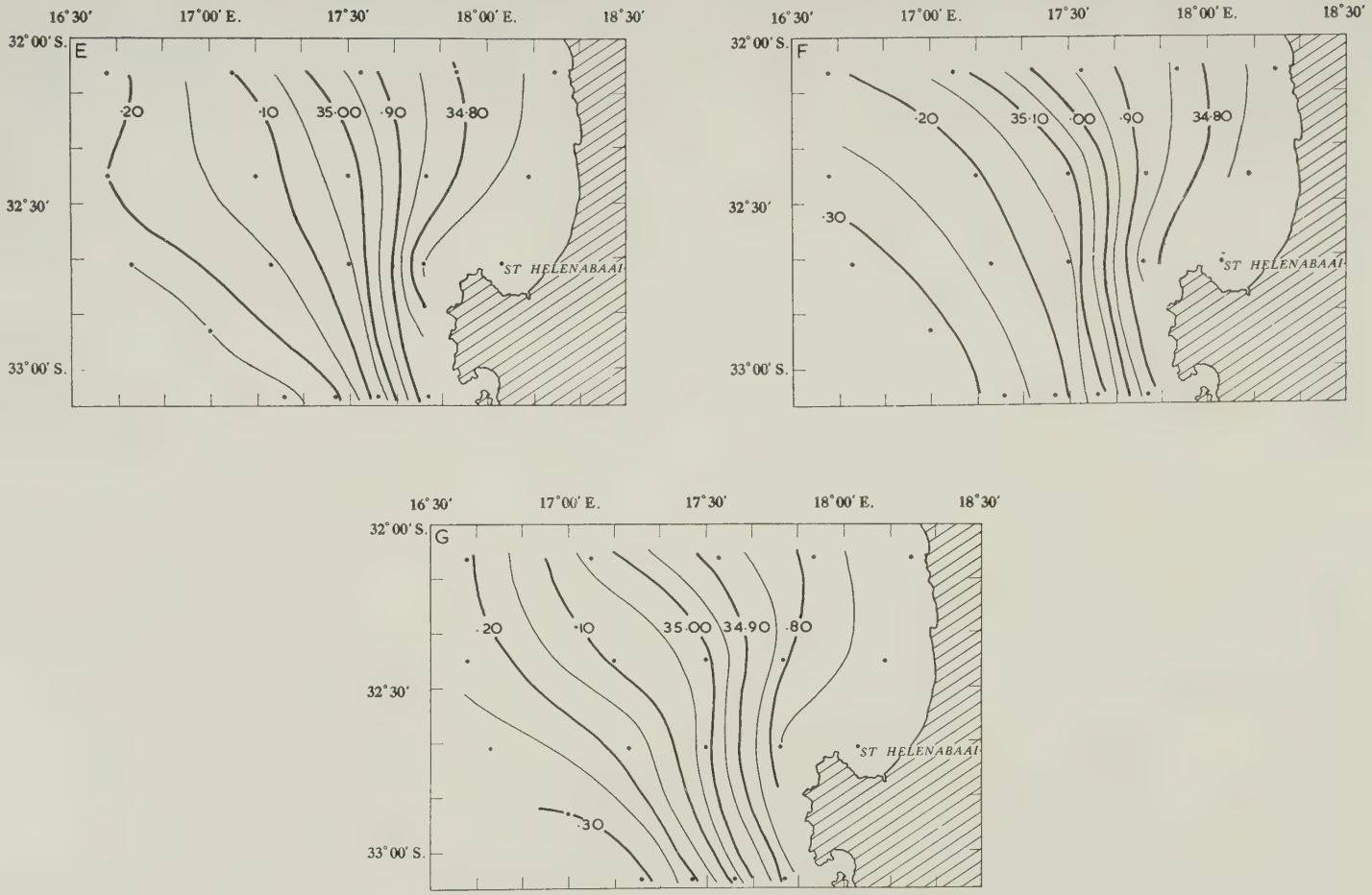

PLATE 6.—Average mean integral salinites for the 0–50 metres layer for the year September–August: (E) 1954/55, (F) 1955/56, (G) 1956/57.

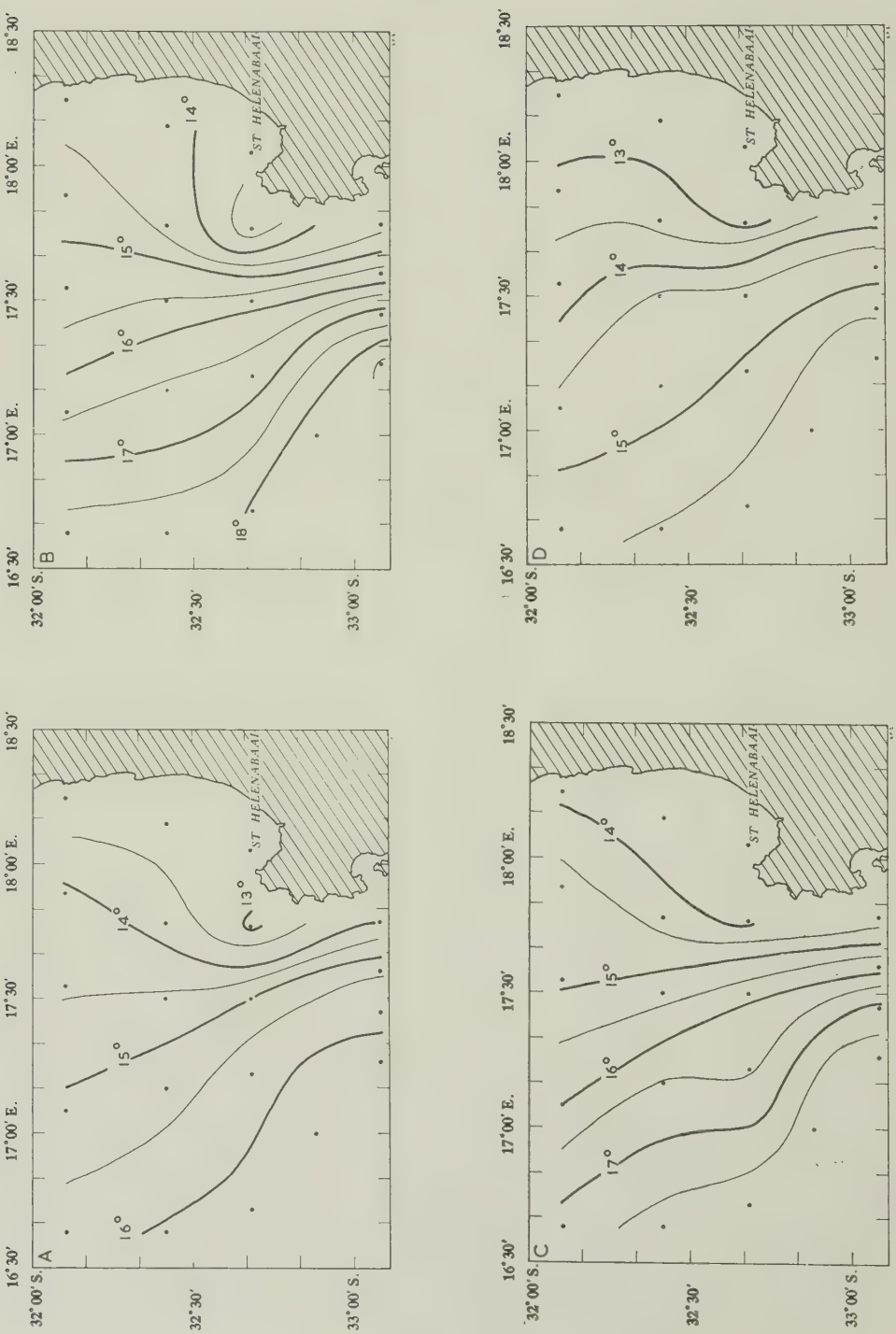

PLATE 7.—Seven-year average values of the surface temperature during (A) Spring, (B) Summer, (C) Autumn, (D) Winter.

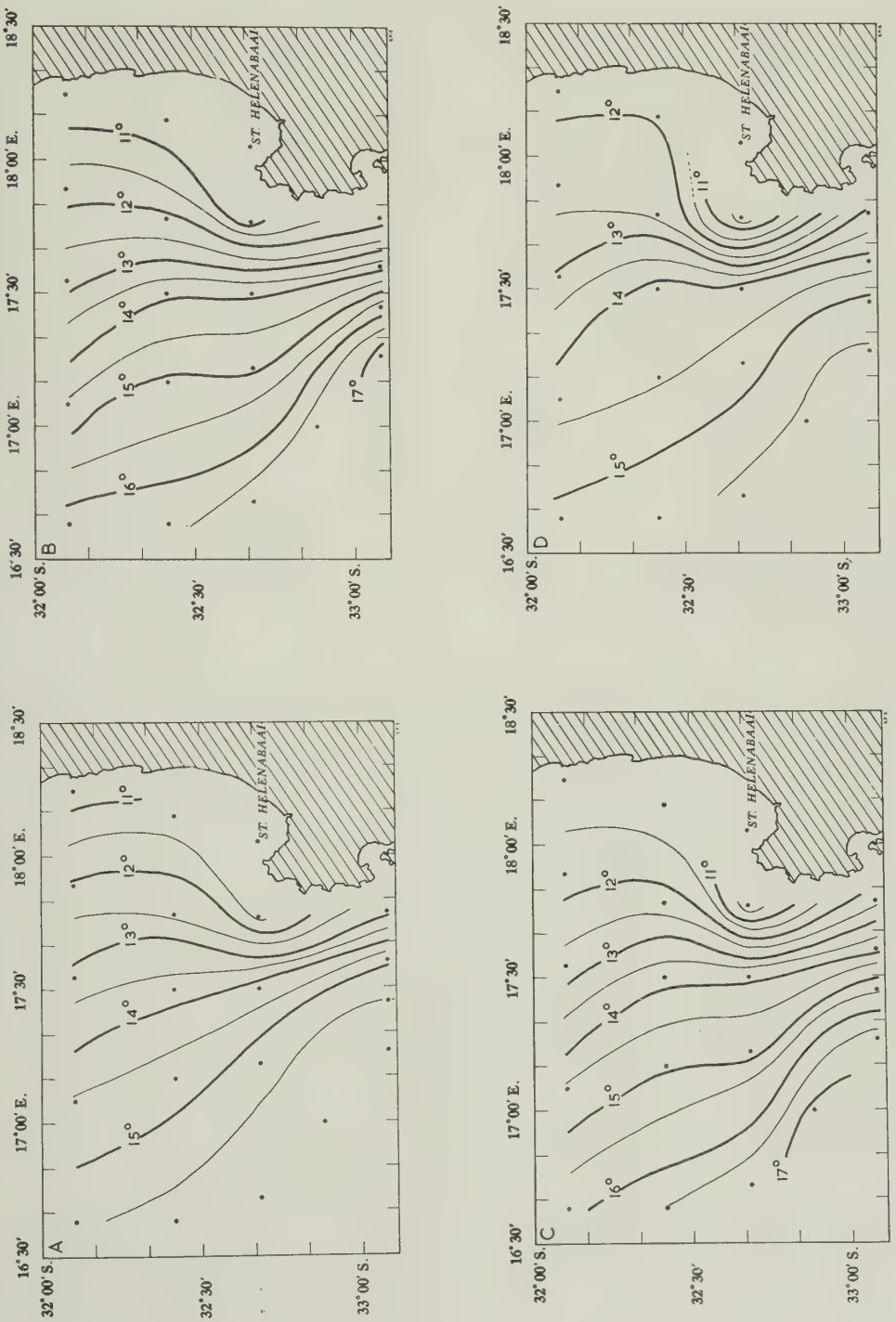

PLATE 8.—Seven-year average values of the 0–50 metres mean integral temperature during: (A) Spring, (B) Summer, (C) Autumn, (D) Winter.

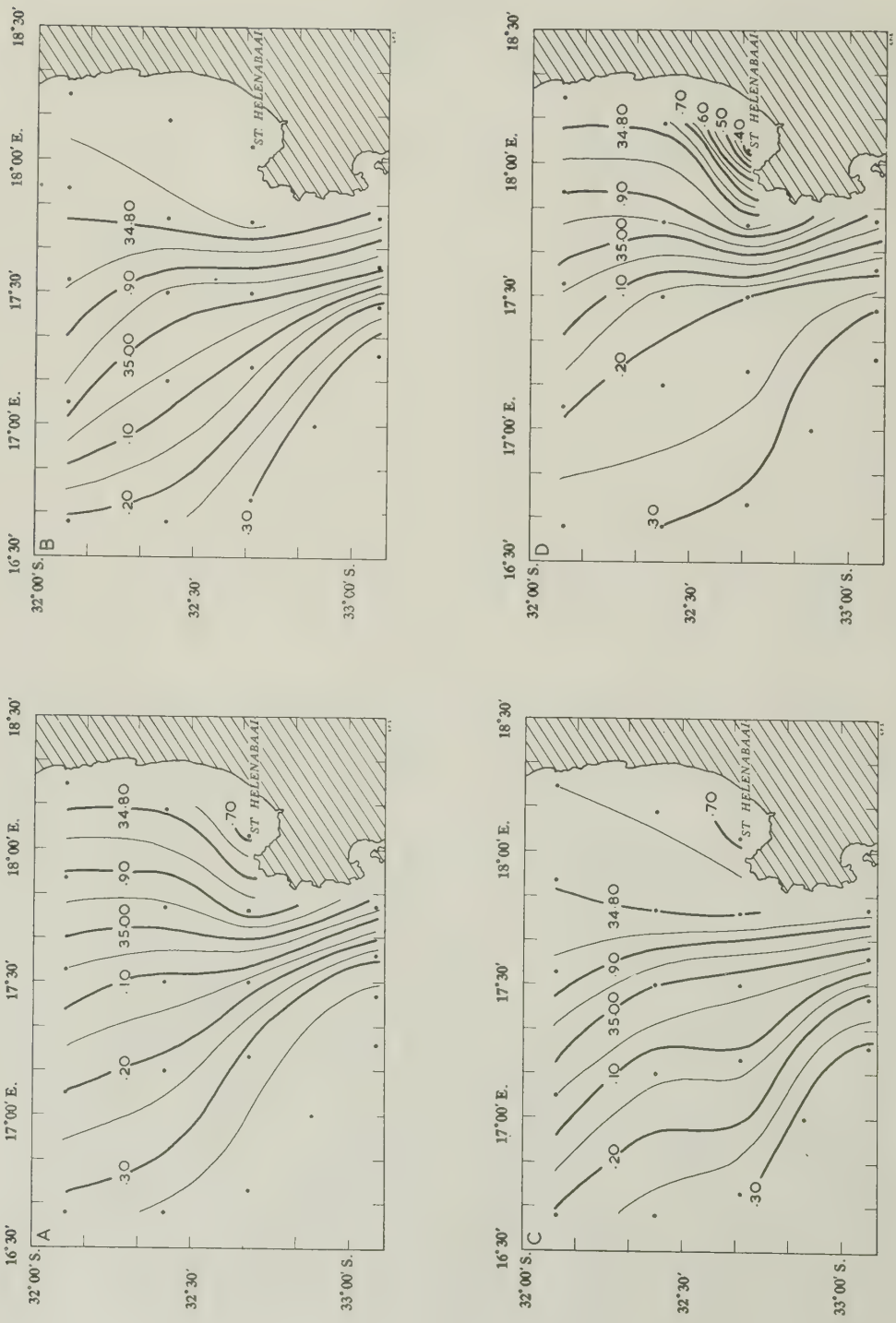

PLATE 9.—Seven-year average values of the surface salinity for: (A) Spring, (B) Summer, (C) Autumn, (D) Winter.

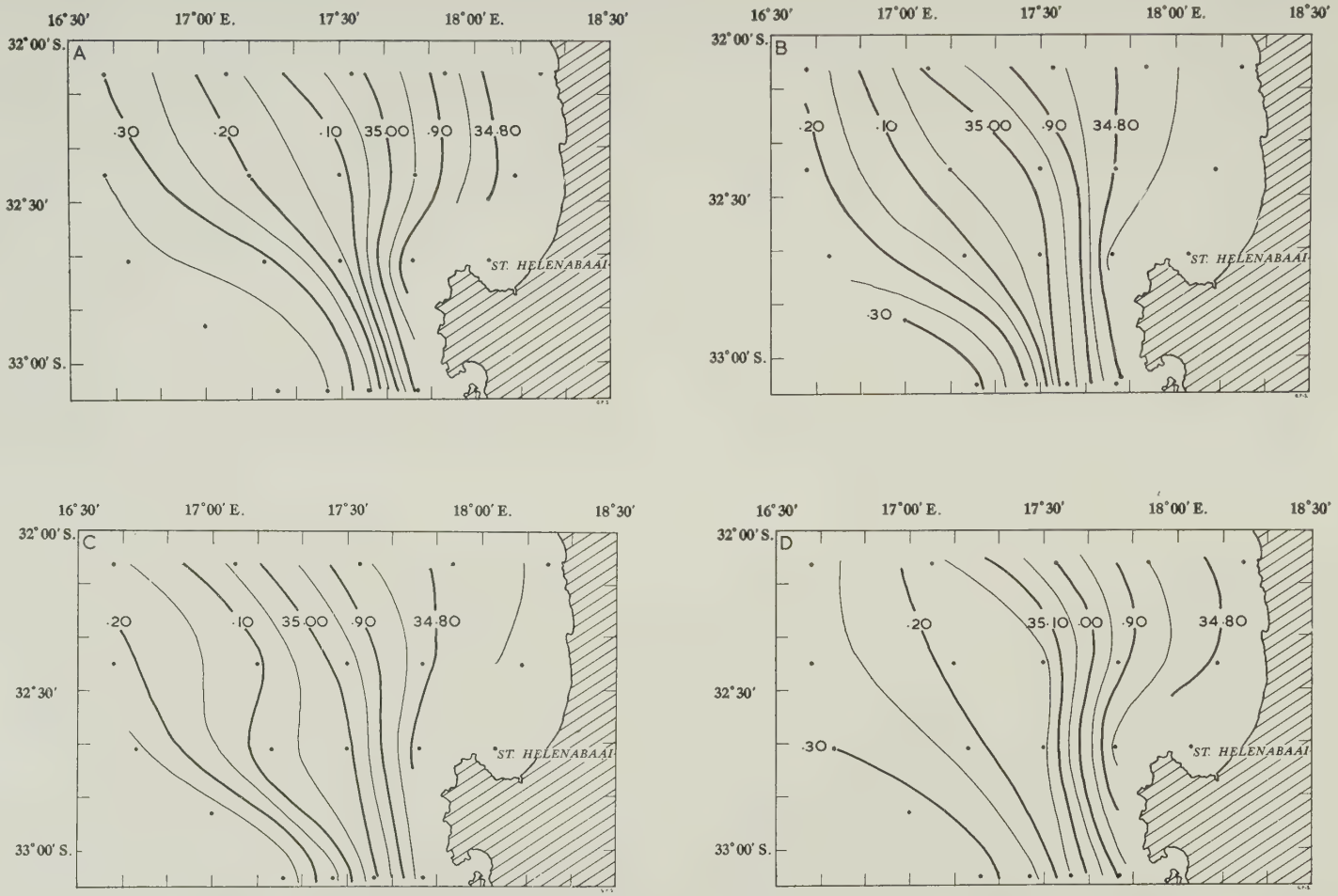

PLATE 10.—Seven-year average values of the 0–50 metres mean ingetral salinity: (A) Spring, (B) Summer, (C) Autumn, (D) Winter.

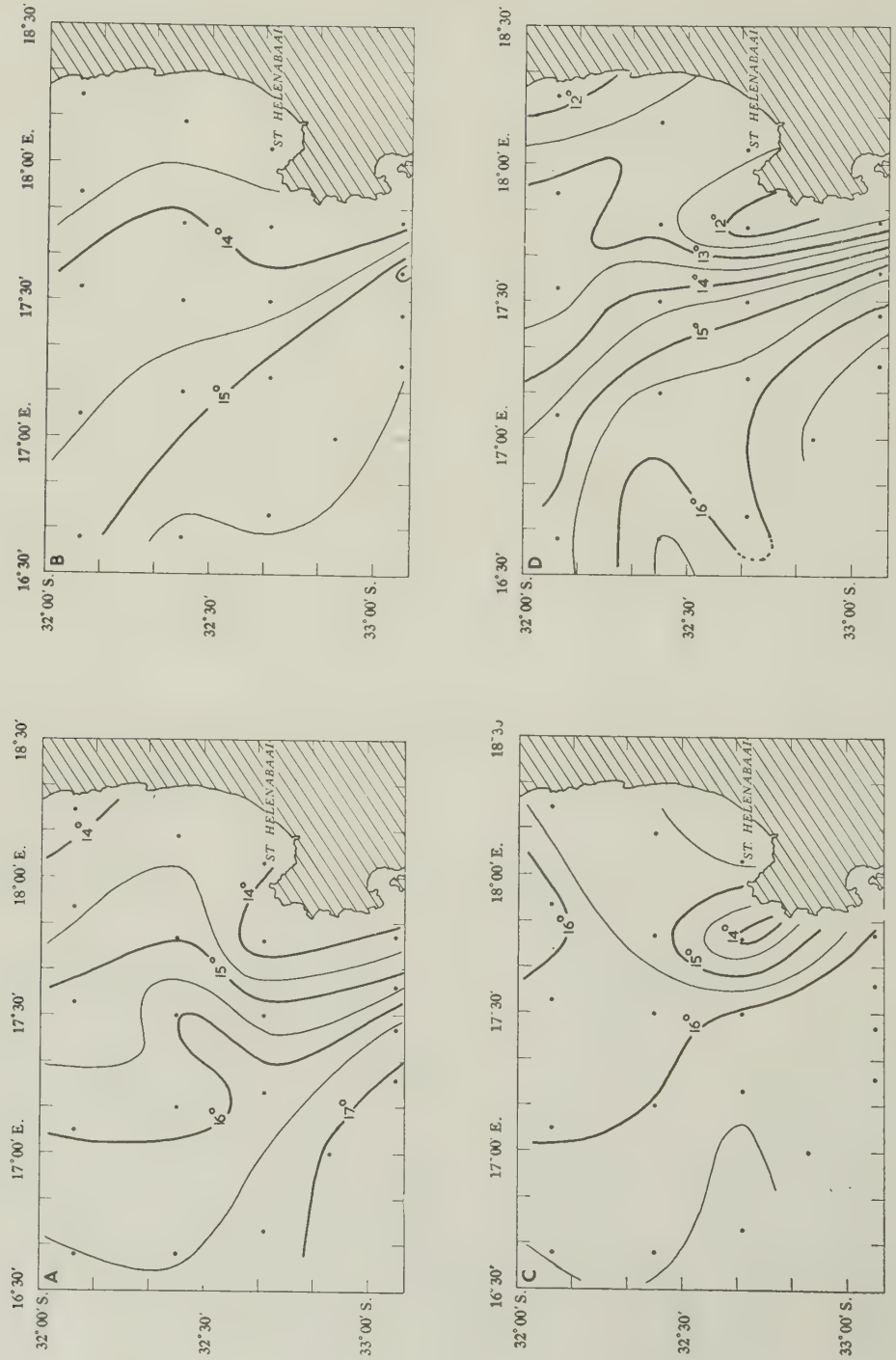

PLATE 11.—Surface temperatures for Spring: (A) 1950, (B) 1951, (C) 1952, (D) 1953.

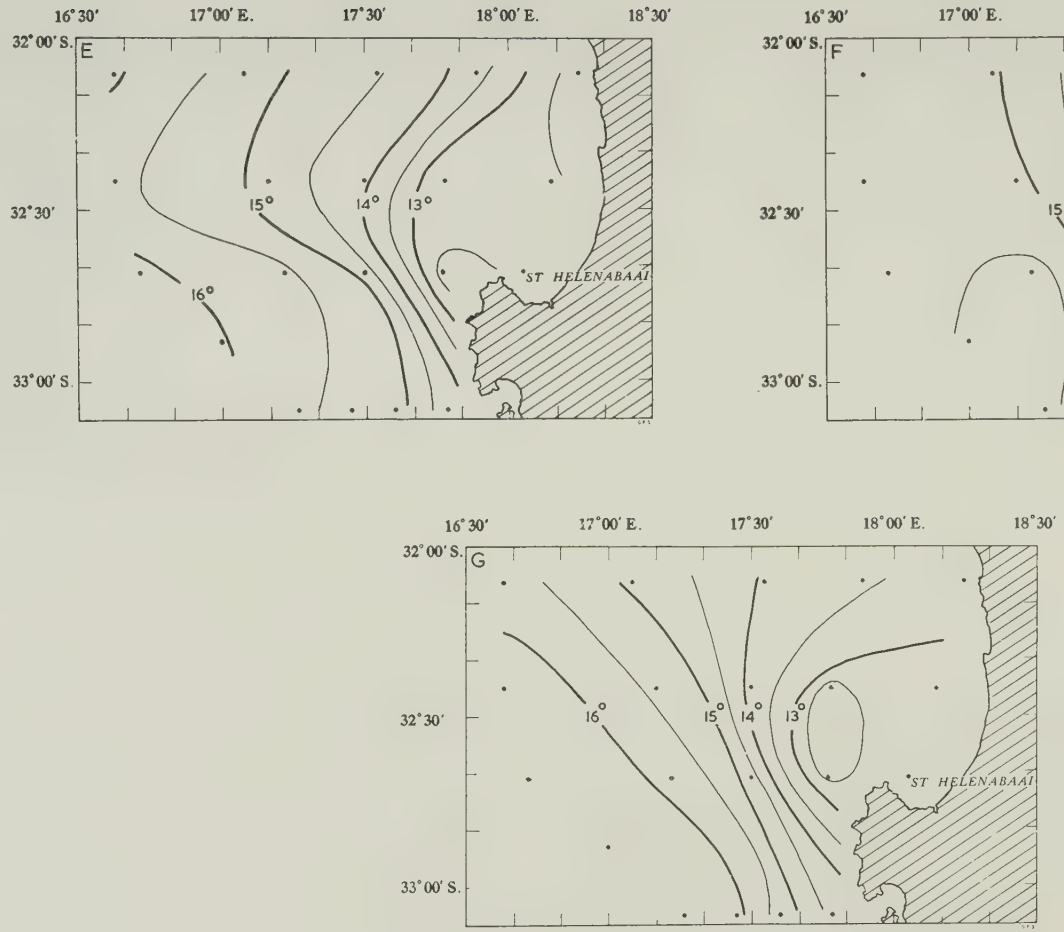

PLATE 11.—Surface temperatures for Spring: (E) 1954, (F) 1955, (G) 1956.

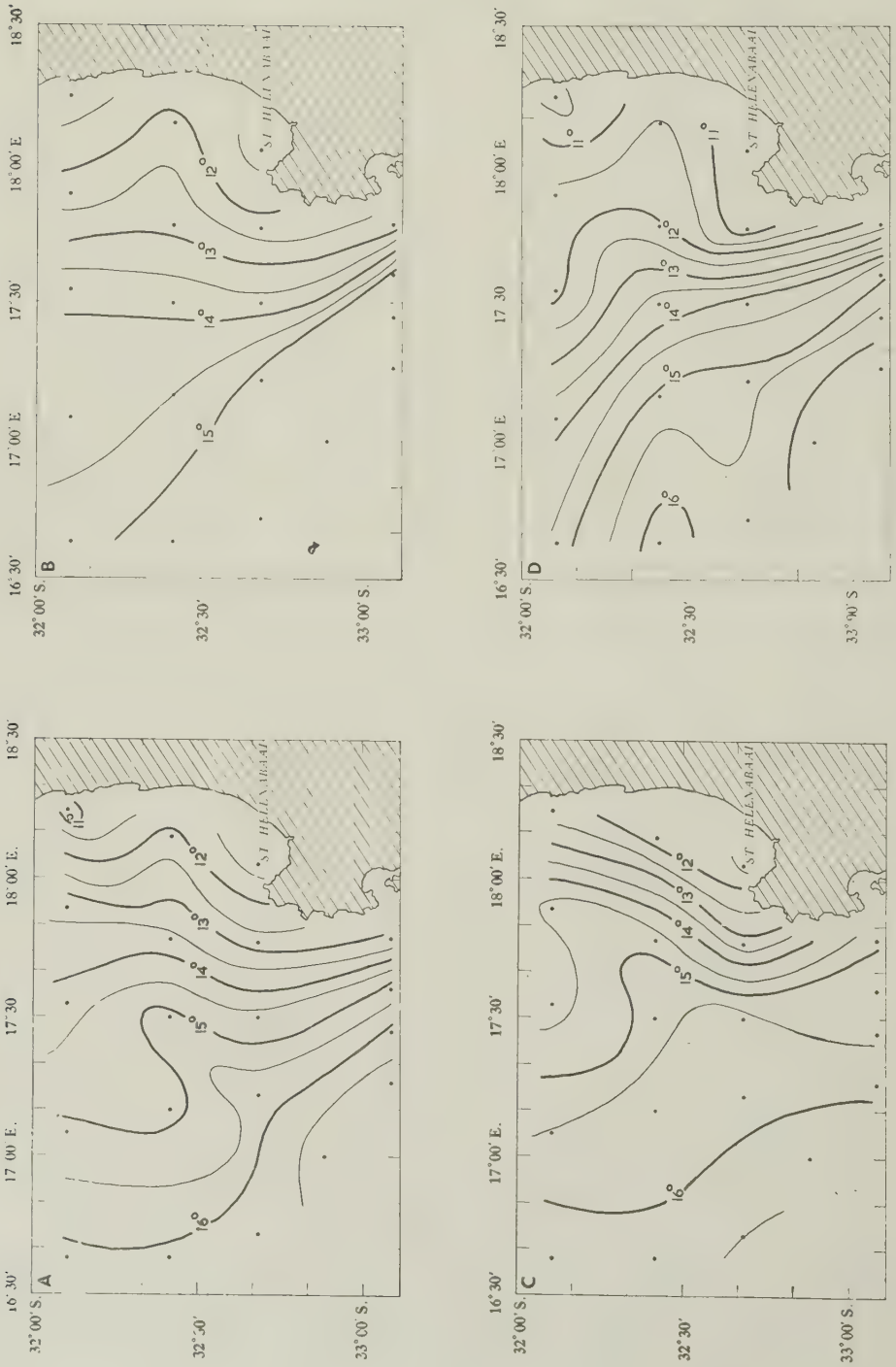

PLATE 12.—20 metres temperatures for Spring: (A) 1950, (B) 1951, (C) 1952, (D) 1953.

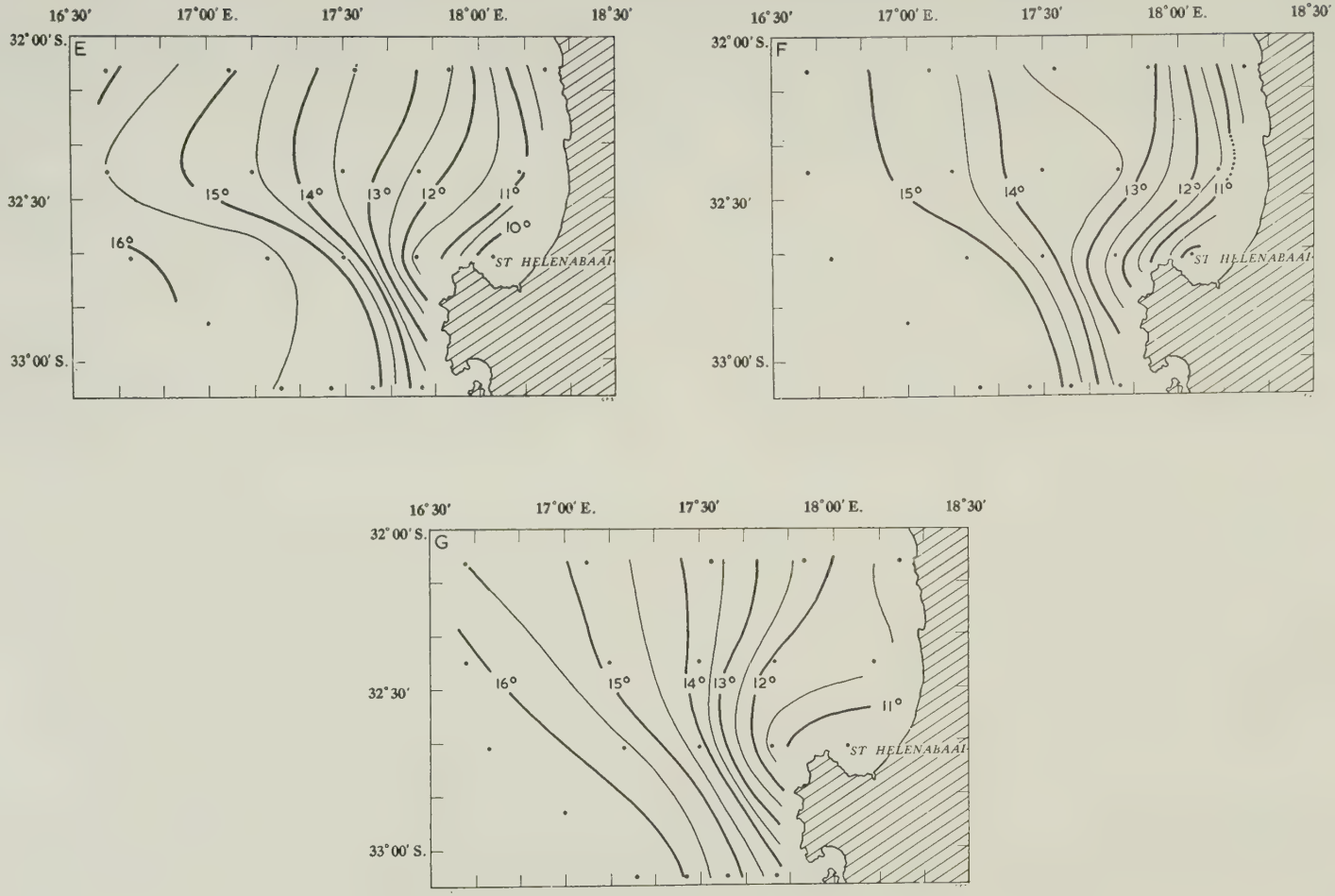

PLATE 12.—20 metres temperatures for Spring: (E) 1954, (F) 1955, (G) 1956.

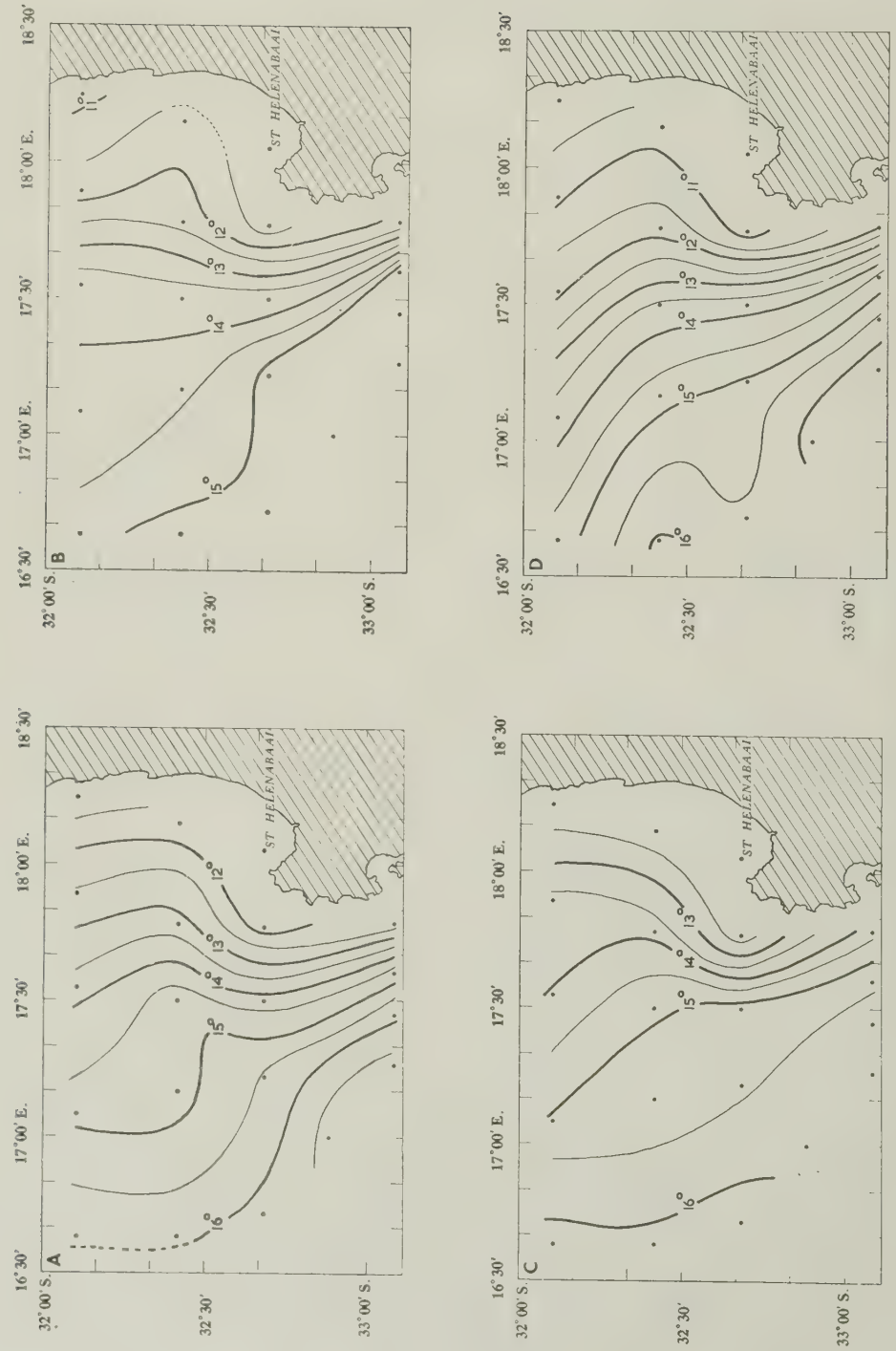

PLATE 13.—0–50 metres mean integral temperatures for Spring: (A) 1950, (B) 1951, (C) 1952, (D) 1953.

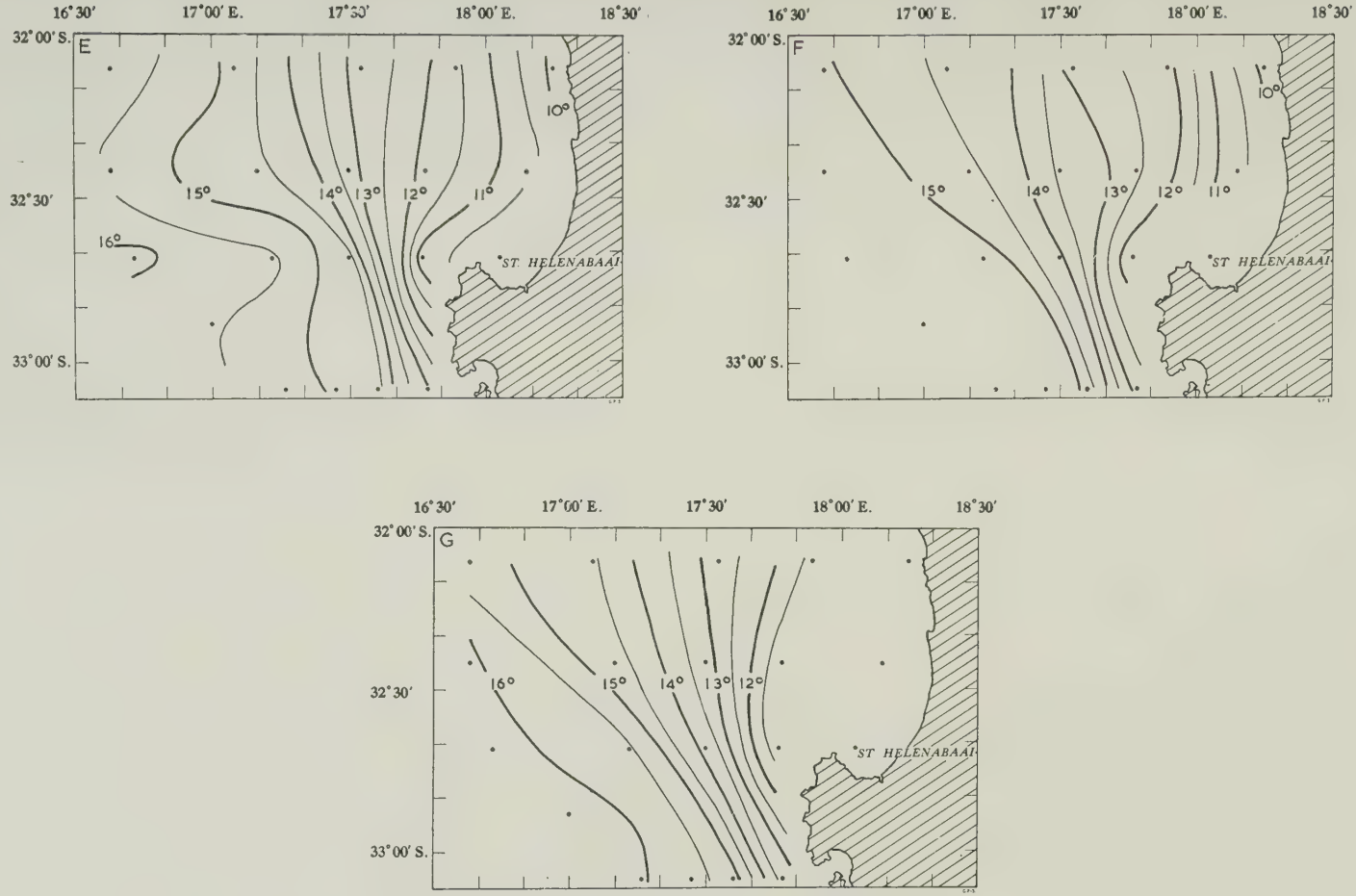

PLATE 13.—0–50 metres mean integral temperatures for Spring: (E) 1954, (F) 1955, (G) 1956.

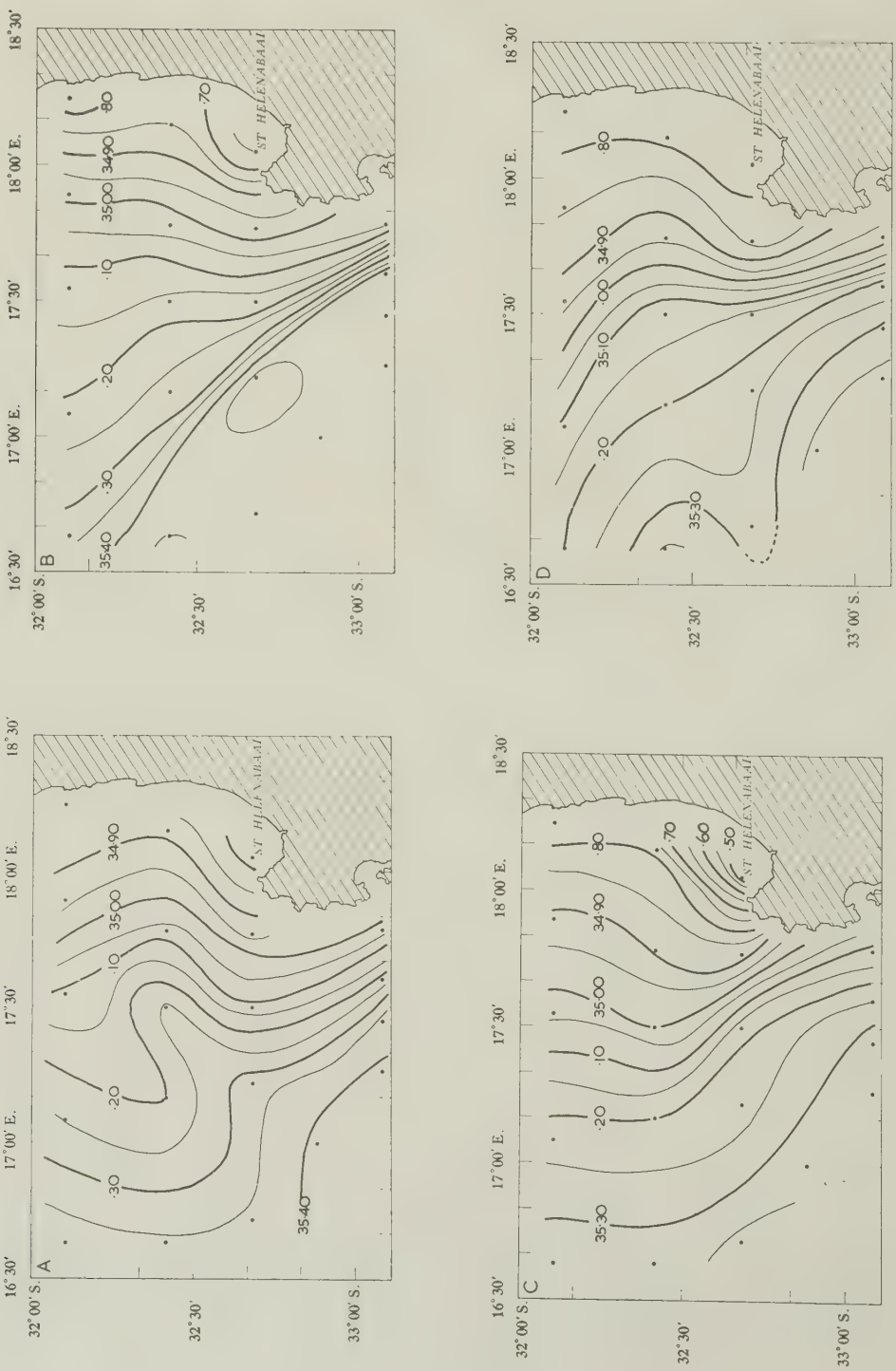

PLATE 14.—Surface salinities for Spring: (A) 1950, (B) 1951, (C) 1952, (D) 1953.

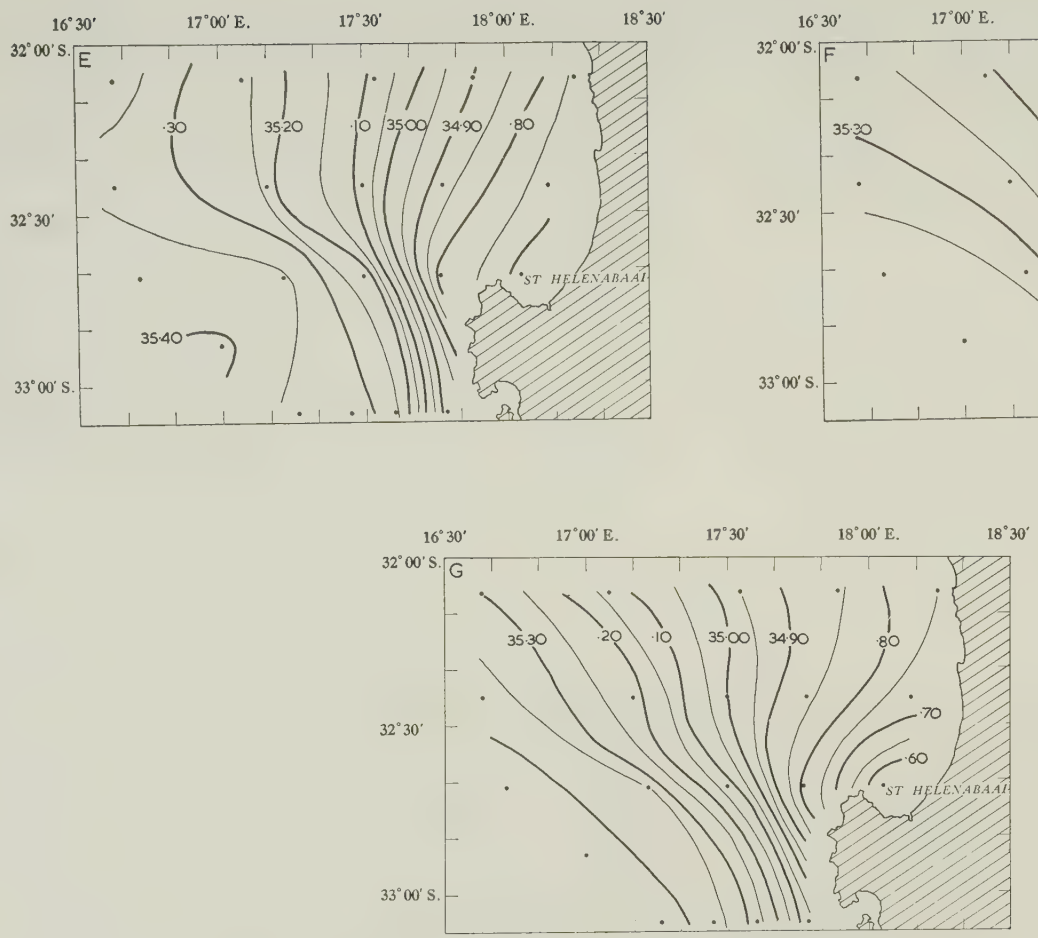

PLATE 14.—Surface salinities for Spring: (E) 1954, (F) 1955, (G) 1956.

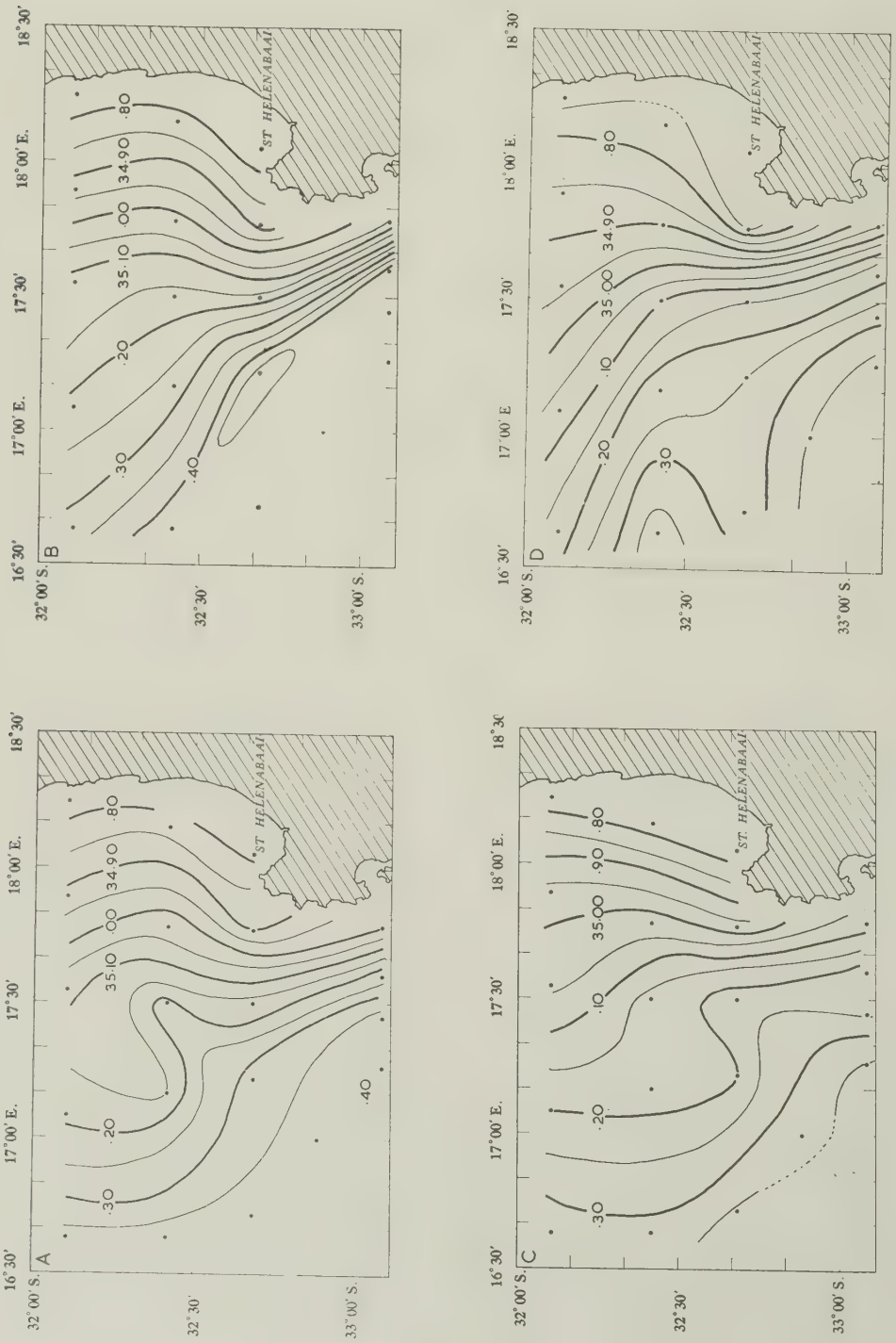

PLATE 15.—20 metres salinities for Spring: (A) 1950, (B) 1951, (C) 1952, (D) 1953.

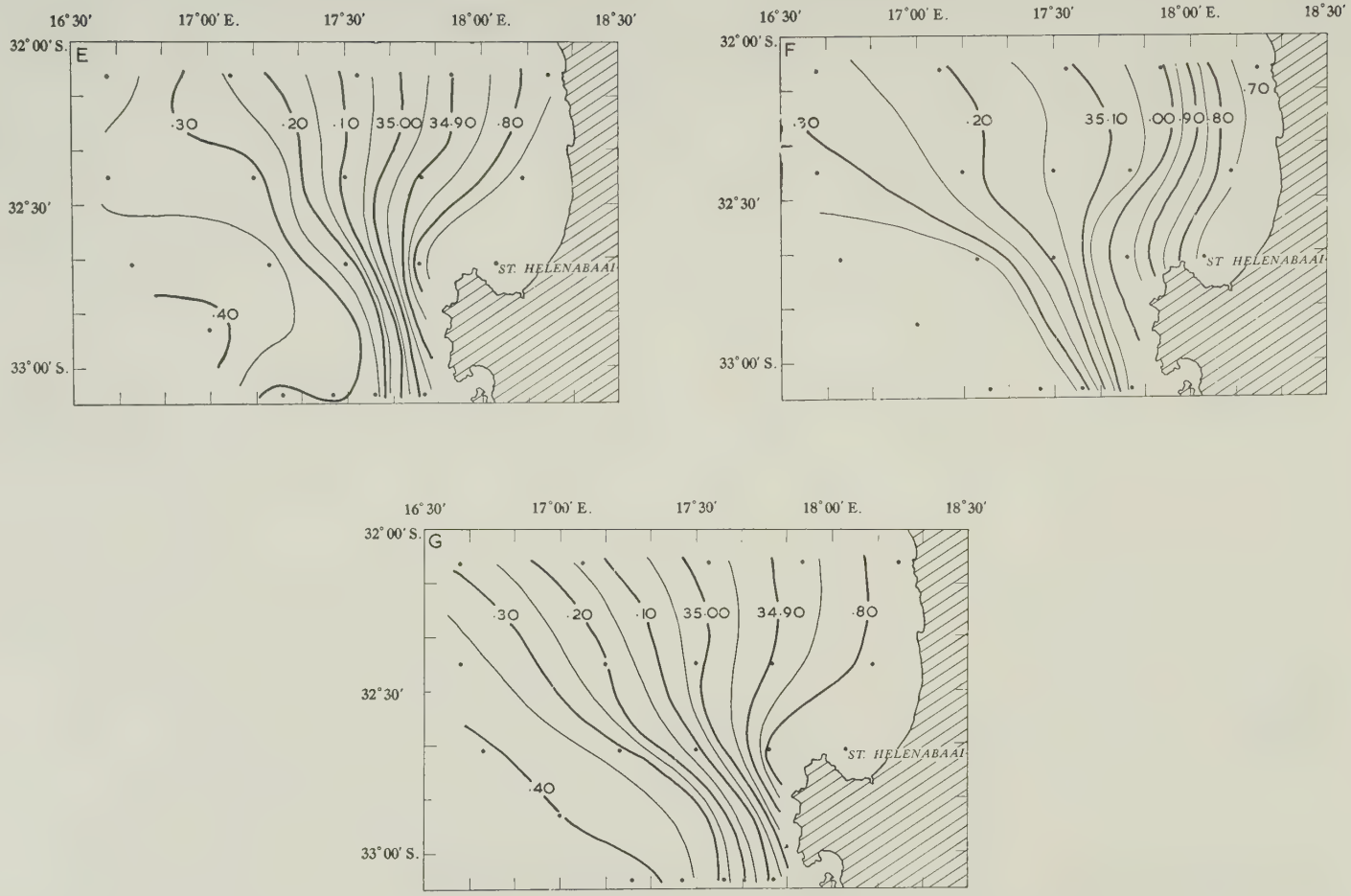

PLATE 15.—20 metres salinities for Spring: (E) 1954, (F) 1955, (G) 1956.

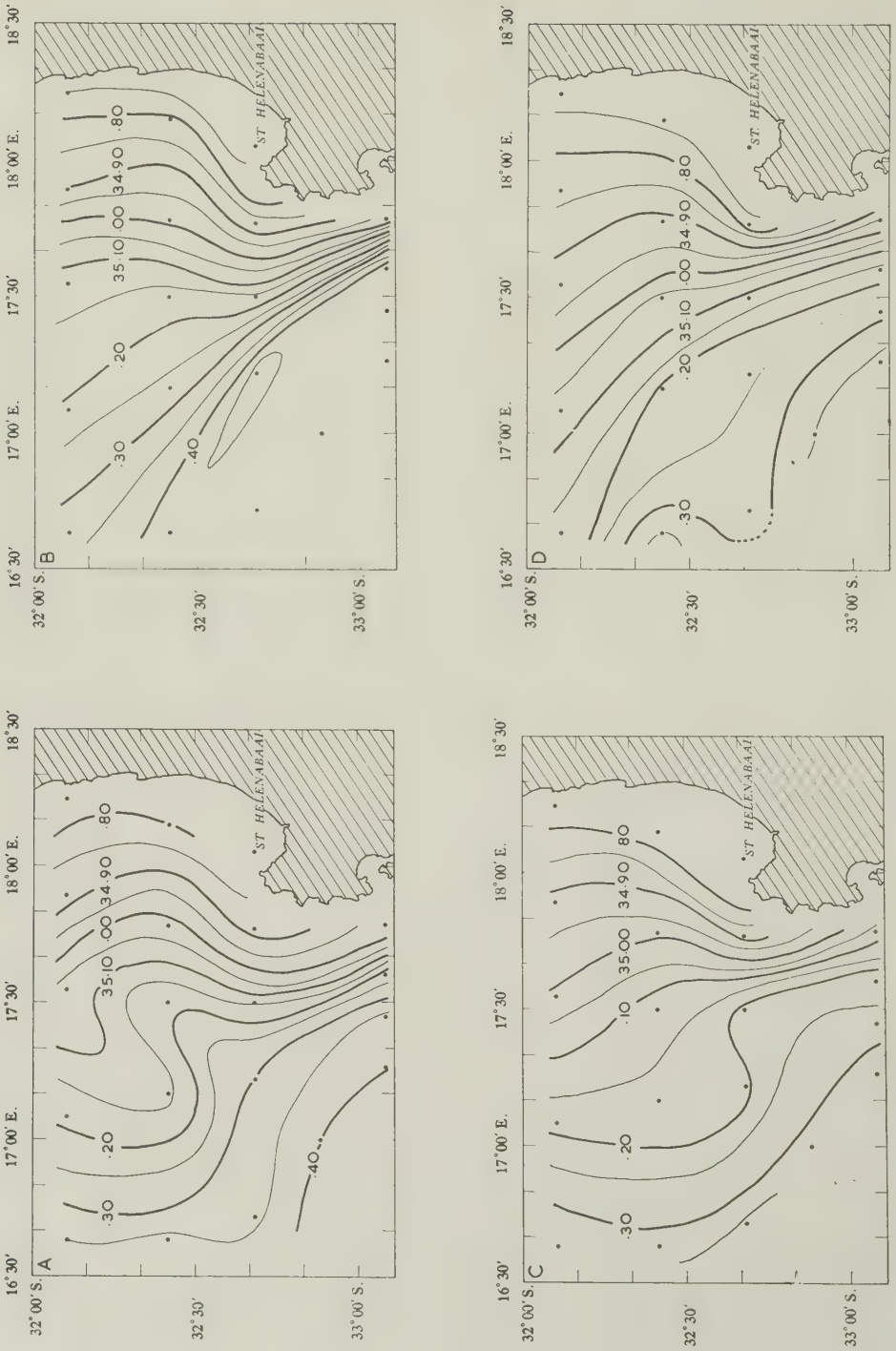

PLATE 16.—0–50 metres mean integral salinities for Spring: (A) 1950, (B) 1951, (C) 1952, (D) 1953.

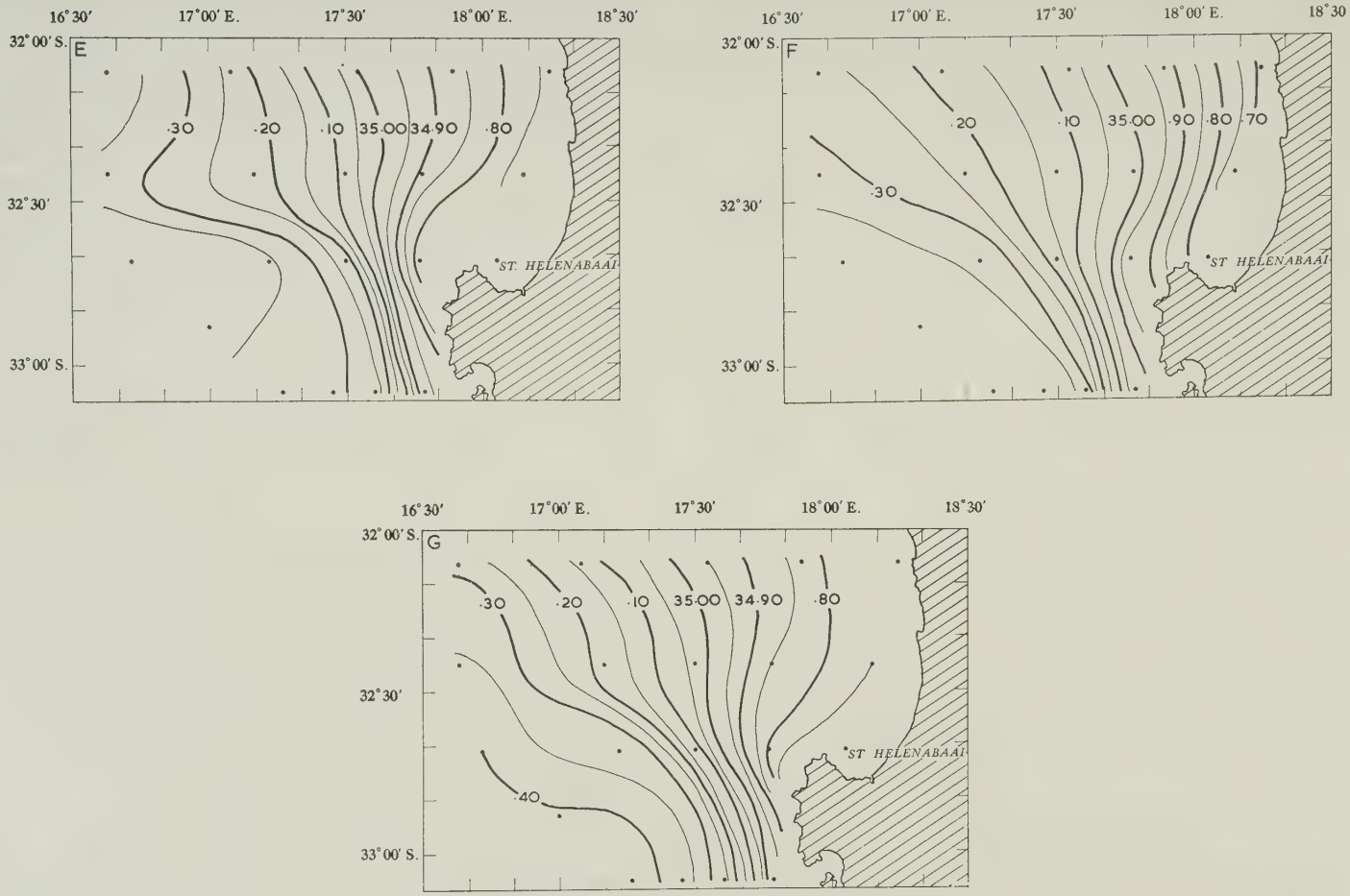

PLATE 16.—0–50 metres mean integral salinities for Spring: (E) 1954, (F) 1955, (G) 1956.

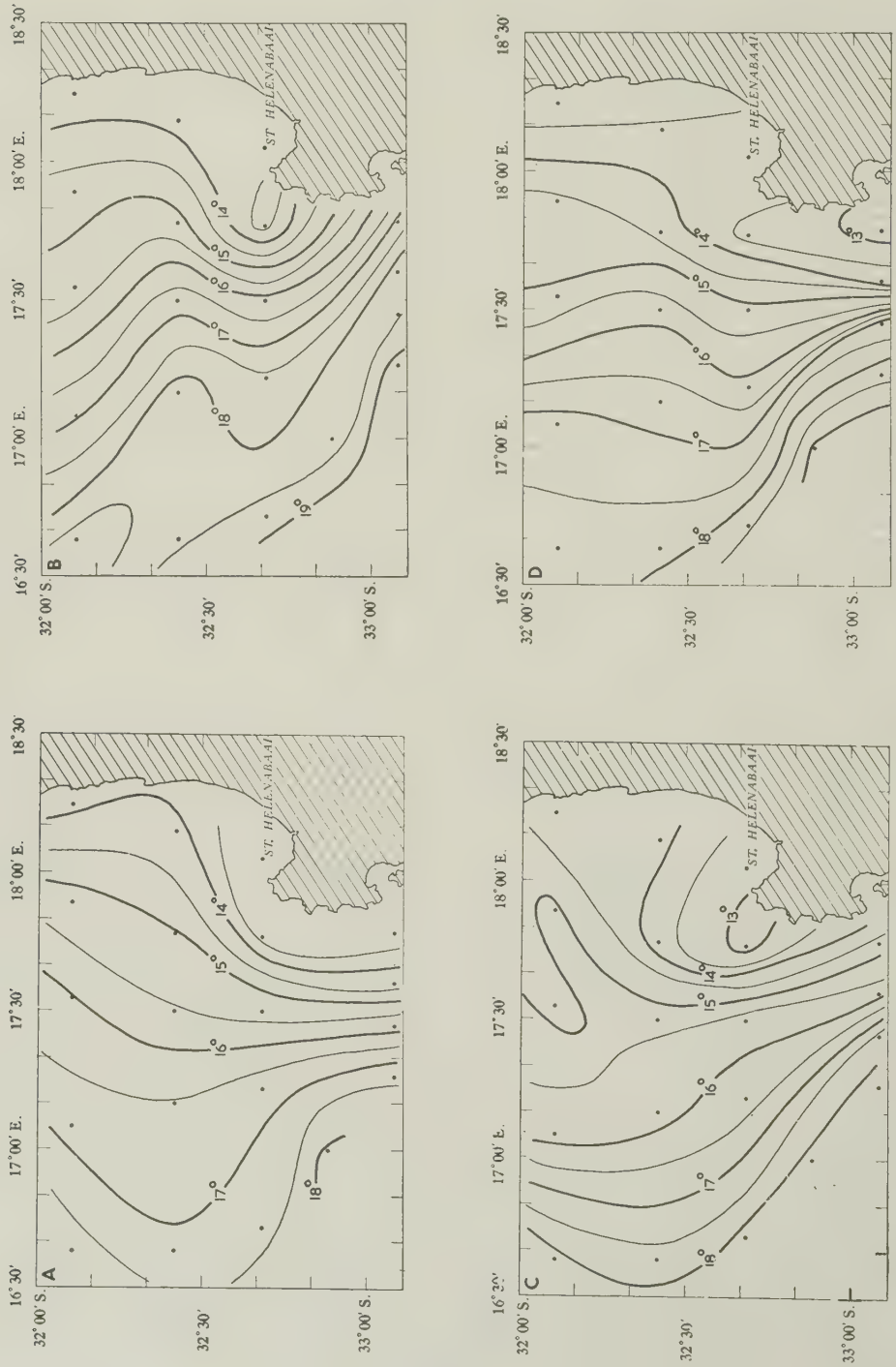

PLATE 17.—Surface temperatures for Summer: (A) 1950/51, (B) 1951/52, (C) 1952/53, (D) 1953/54.

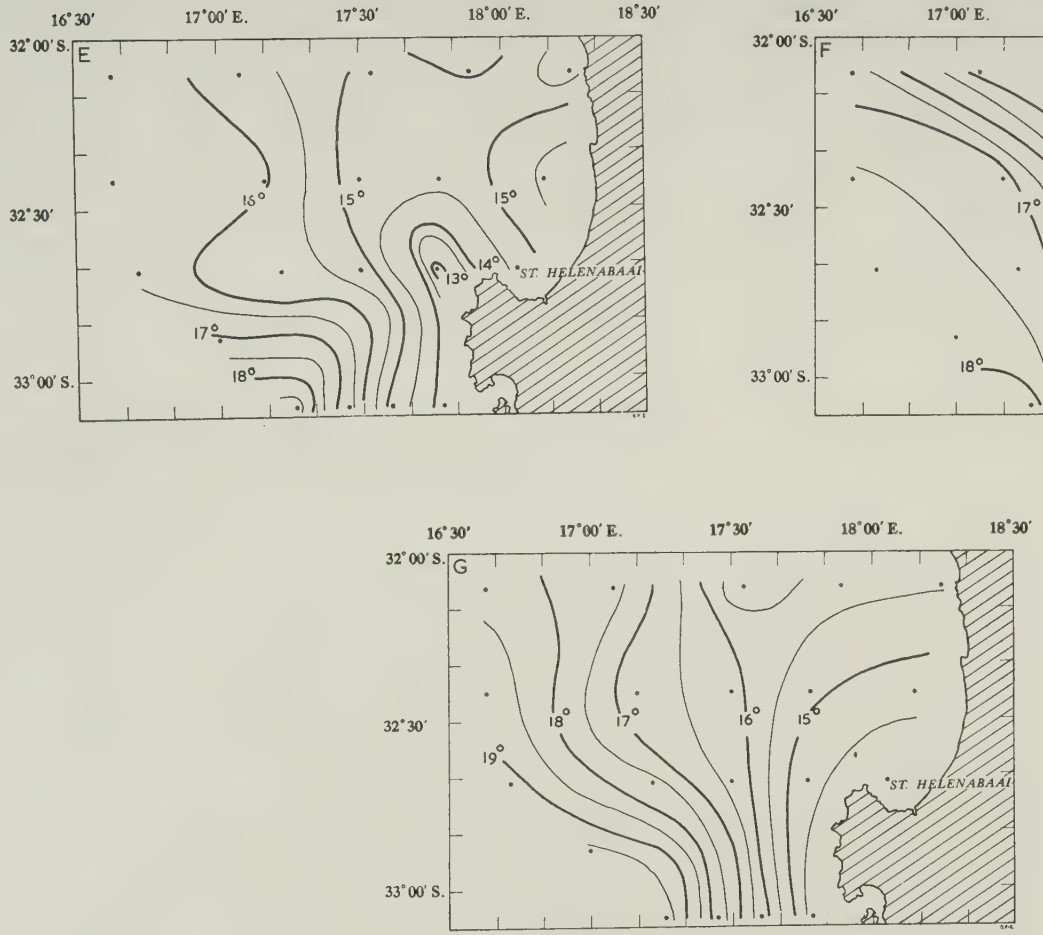

PLATE 17.—Surface temperatures for Summer: (E) 1954/55, (F) 1955/56, (G) 1956/57

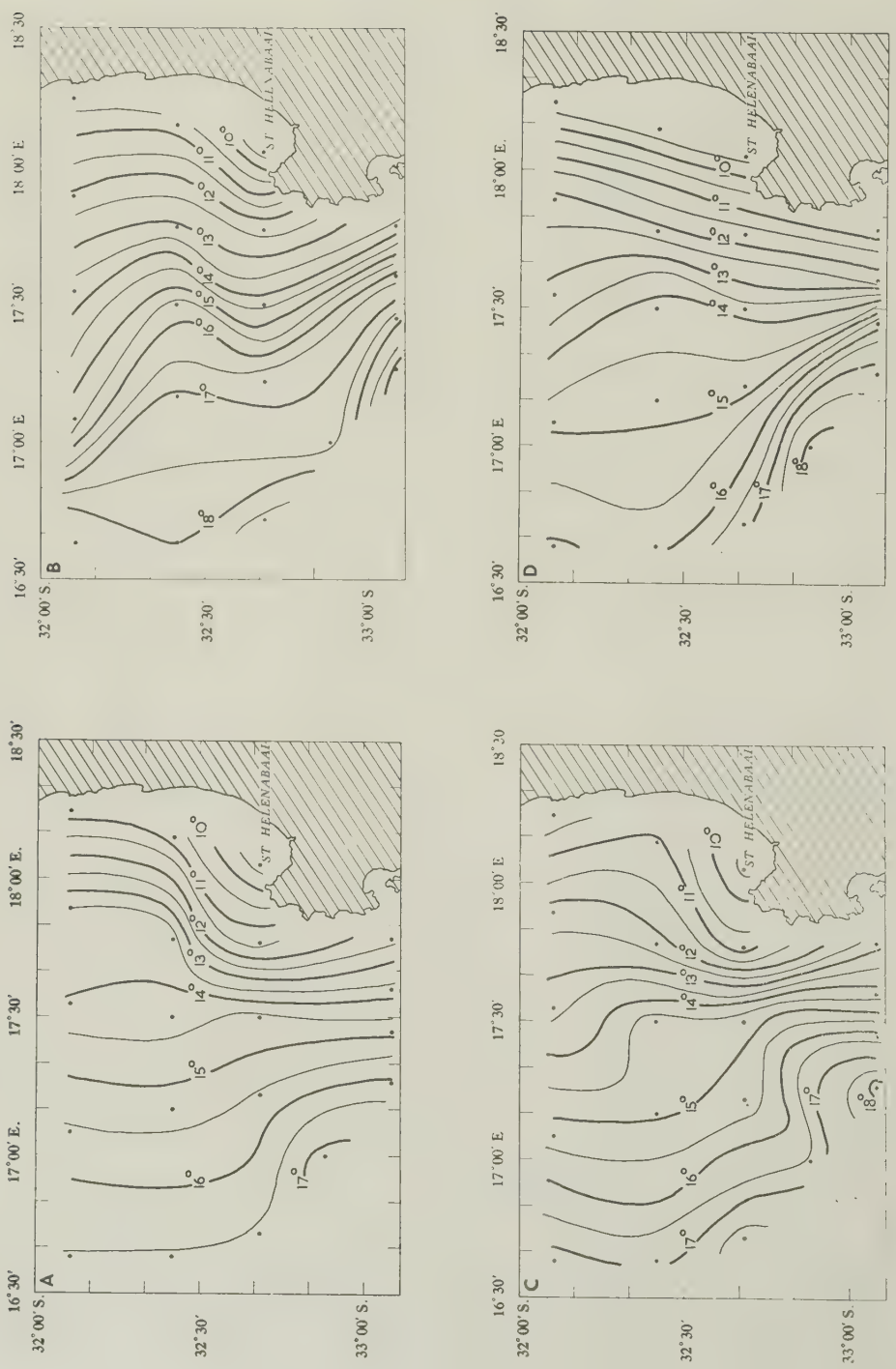

PLATE 18.—20 metres temperatures for Summer: (A) 1950/51, (B) 1951/52, (C) 1952/53, (D) 1953/54.

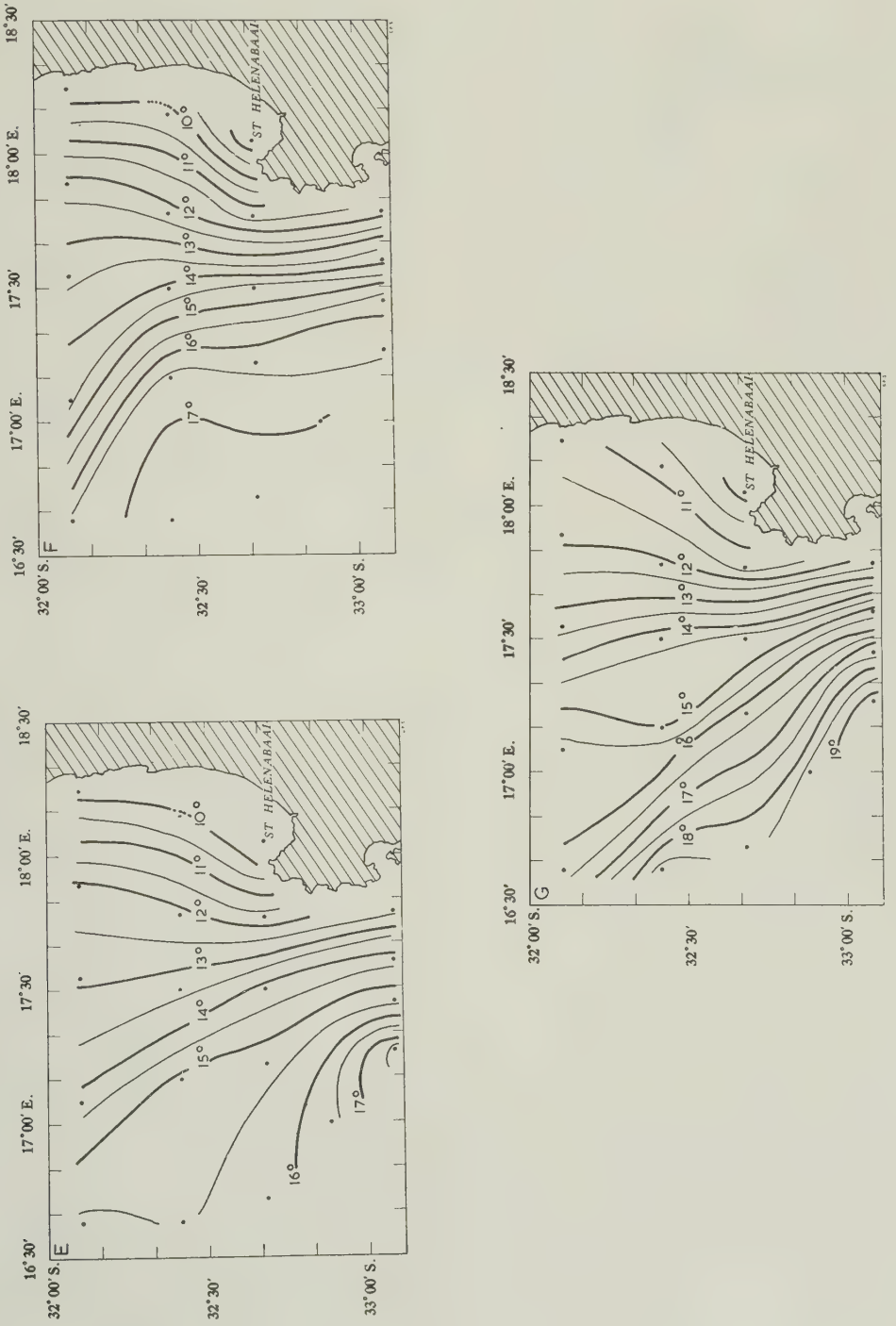

PLATE 18.—20 metres temperatures for Summer: (E) 1954/55, (F) 1955/56, (G) 1956/57.

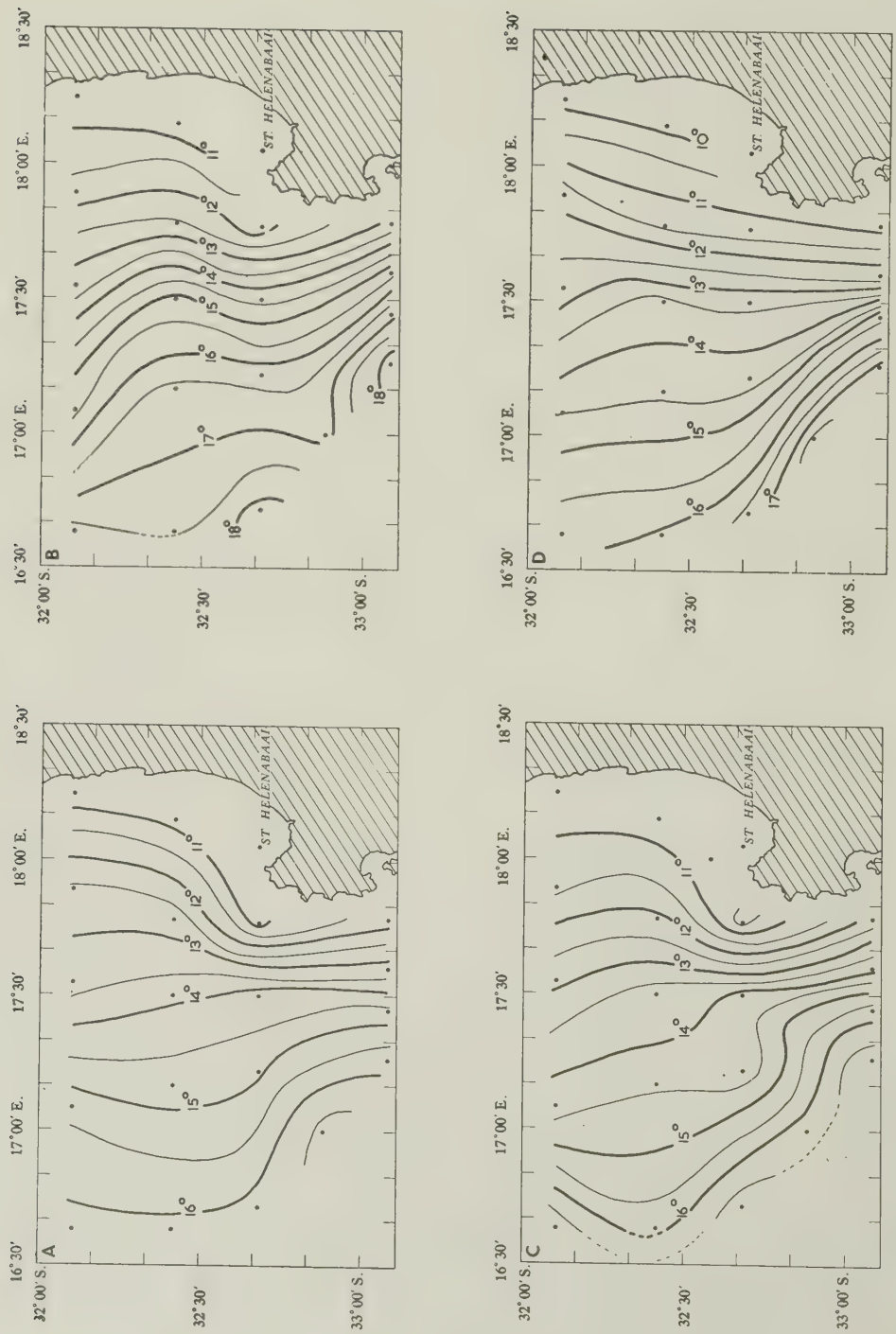

PLATE 19.—0–50 metres mean integral temperatures for Summer: (A) 1950/51, (B) 1951/52, (C) 1952/53, (D) 1953/54.

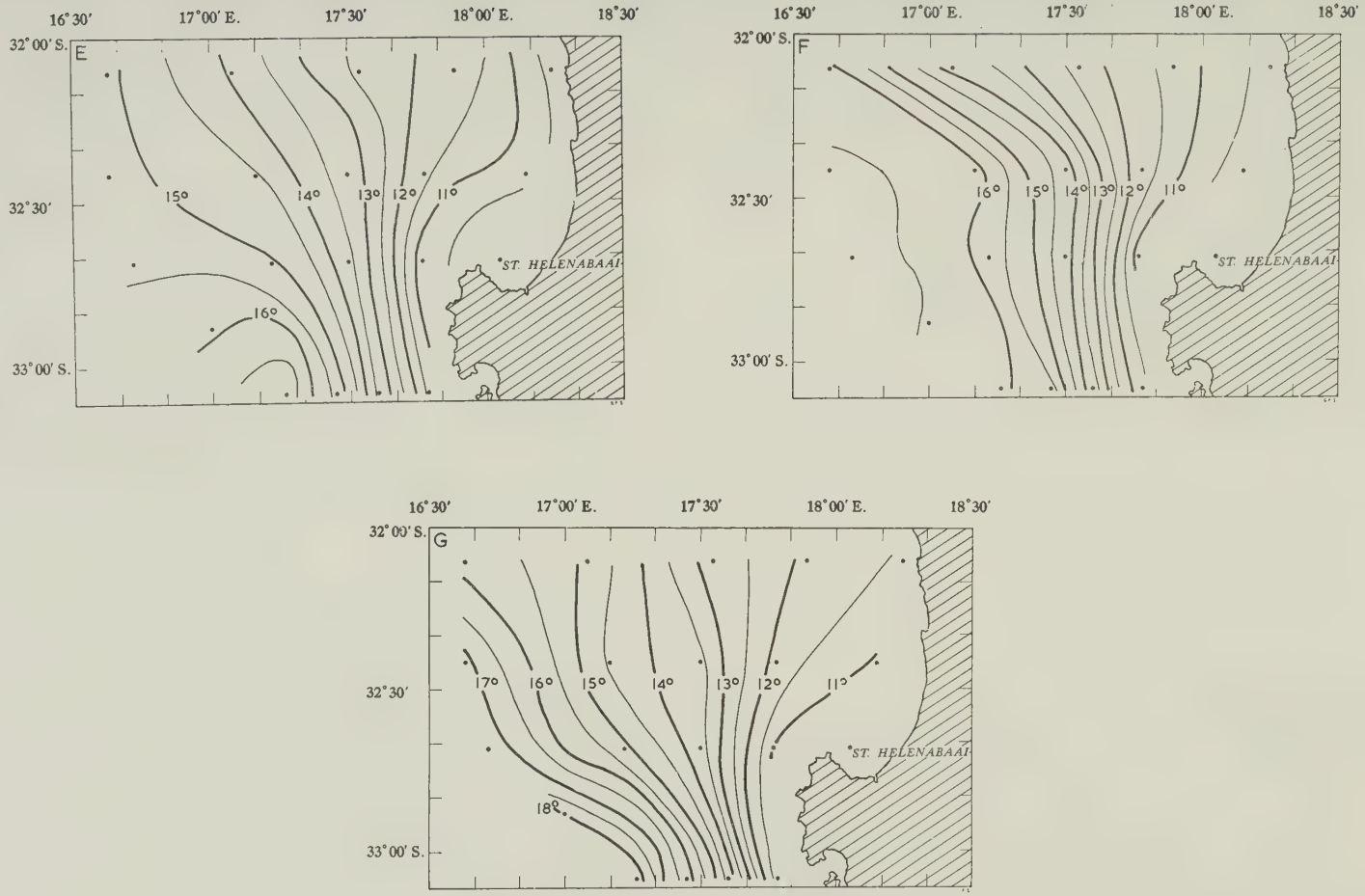

PLATE 19.—0–50 metres mean integral temperatures for Summer: (E) 1954/55, (F) 1955/56, (G) 1956/57.

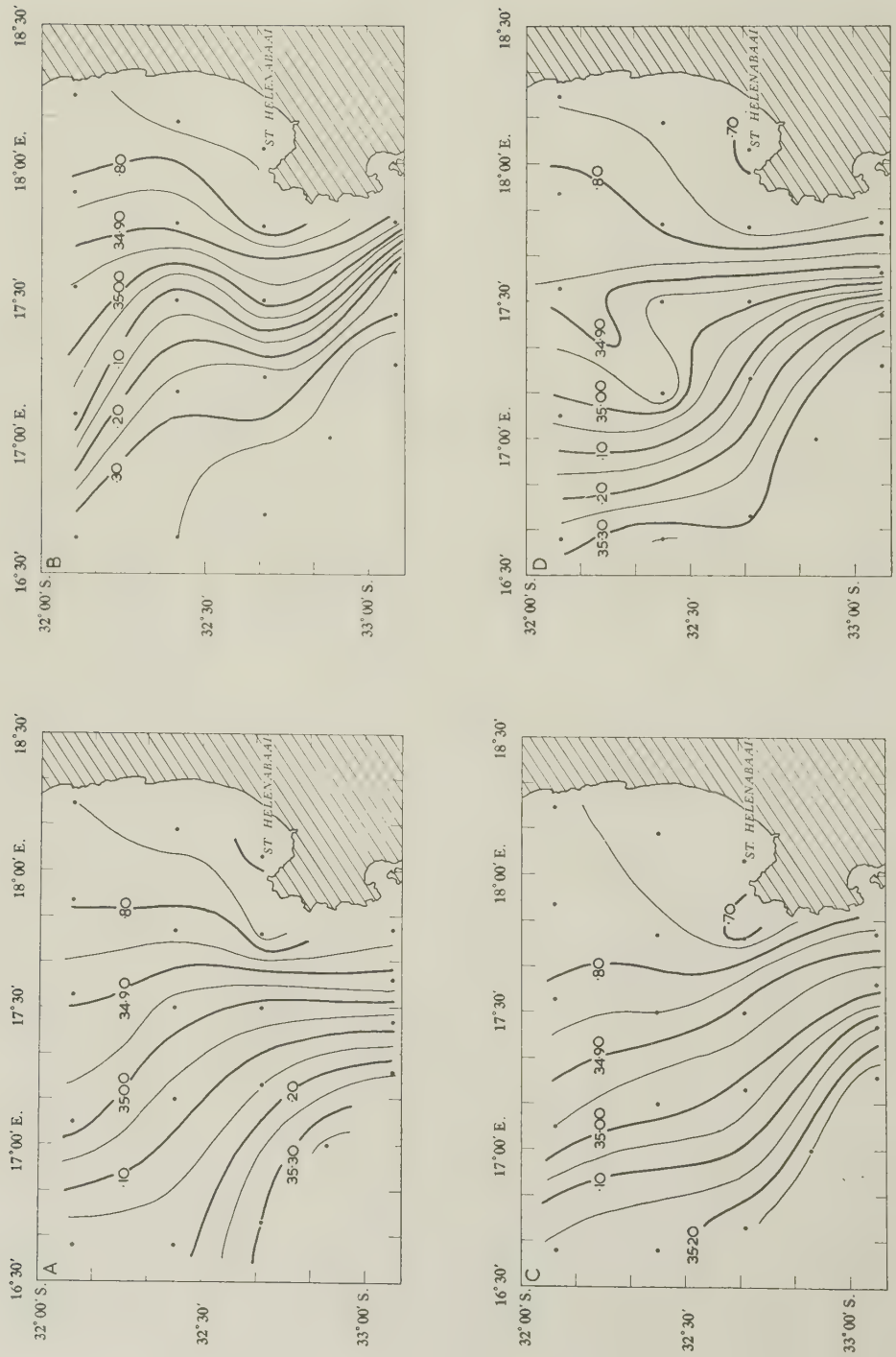

PLATE 20.—Surface salinities for Summer: (A) 1950/51, (B) 1951/52, (C) 1952/53, (D) 1953/54.

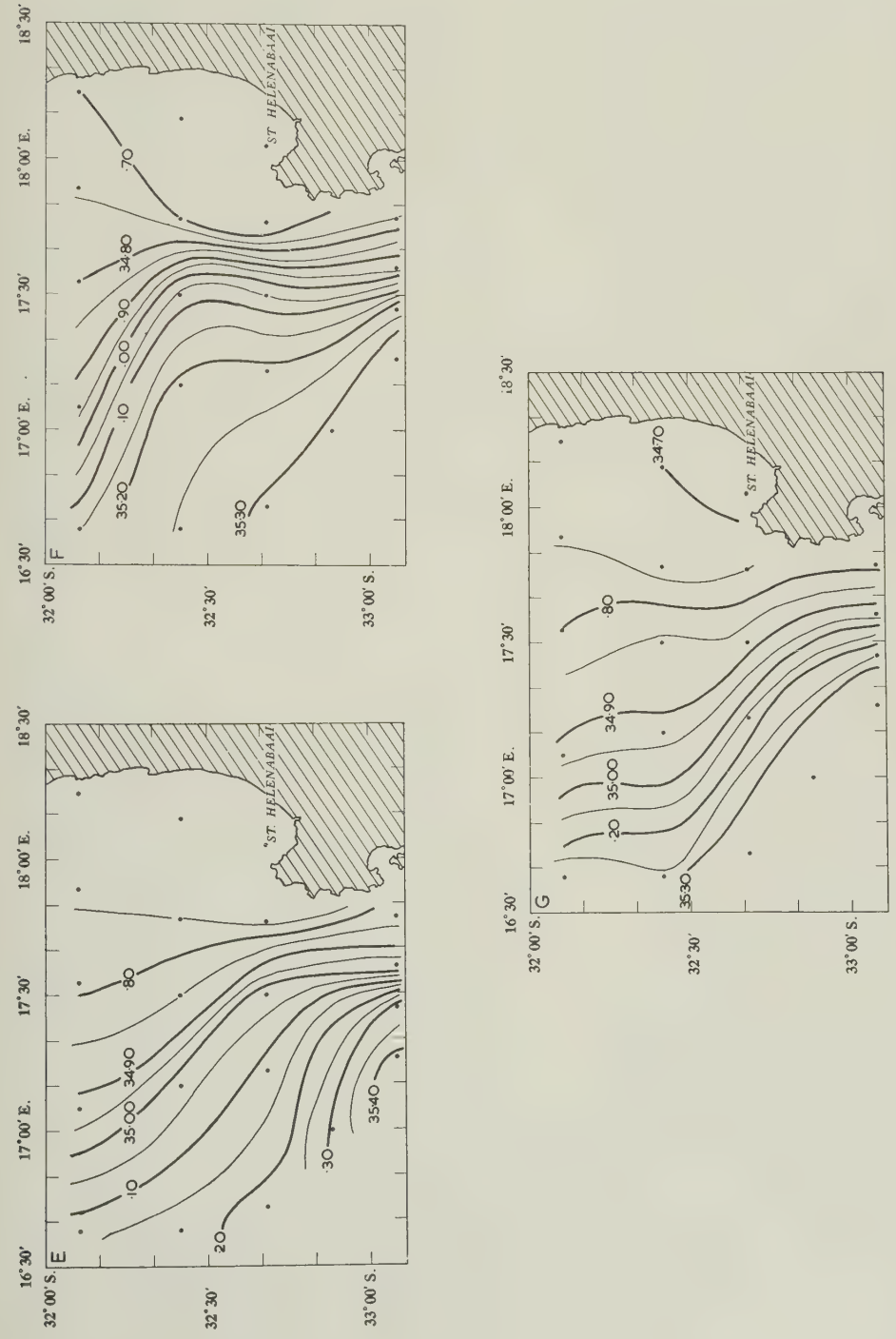

PLATE 20.—Surface salinities for Summer: (E) 1954/55, (F) 1955/56, (G) 1956/57.

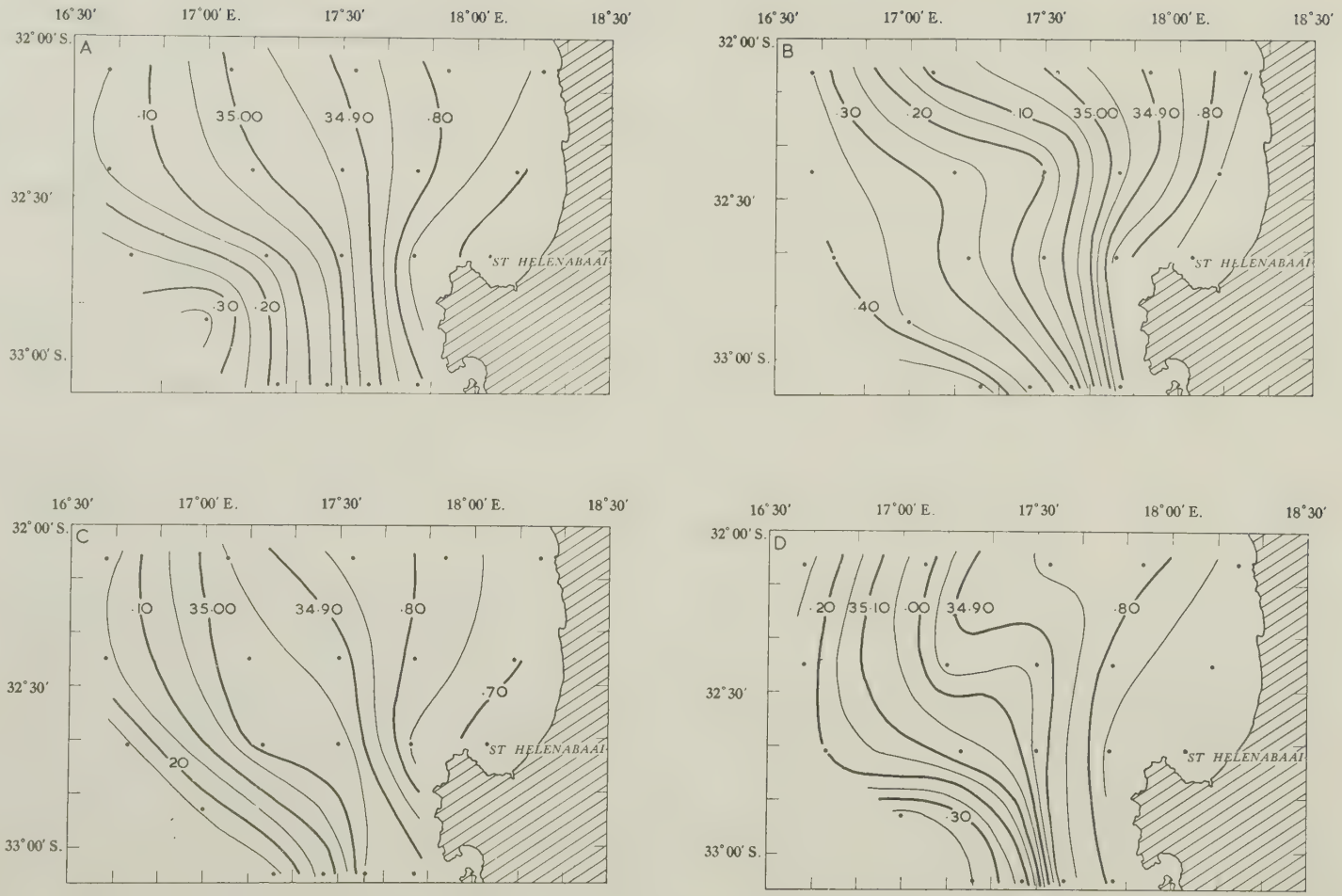

PLATE 21.—20 metres salinities for Summer: (A) 1950/51, (B) 1951/52, (C) 1952/53, (D) 1953/54.

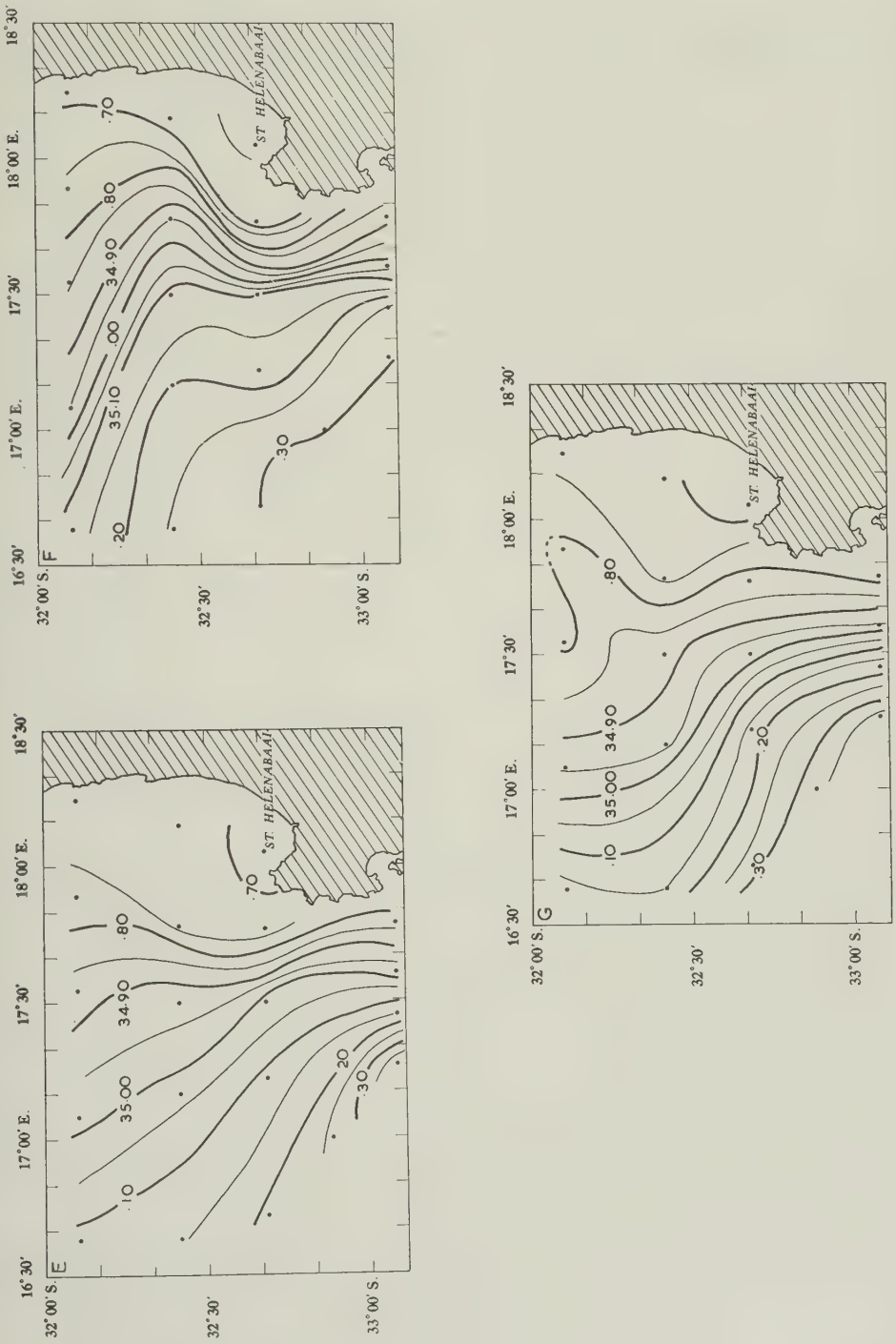

PLATE 21.—20 metres salinities for Summer: (E) 1954/55, (F) 1955/56, (G) 1956/57.

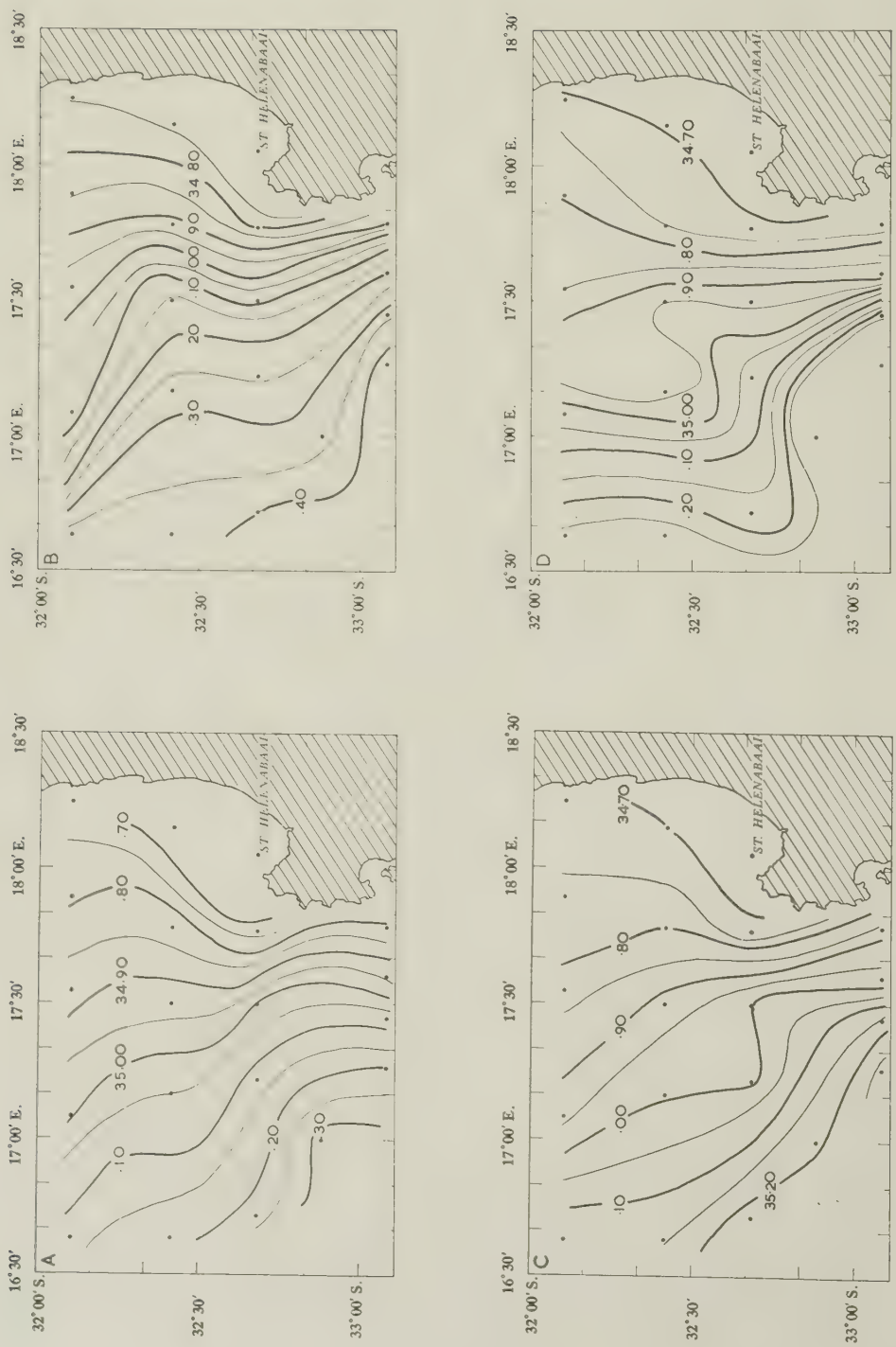

PLATE 22.—0–50 metres mean integral salinities for Summer: (A) 1950/51, (B) 1951/52, (C) 1952/53, (D) 1953/54.

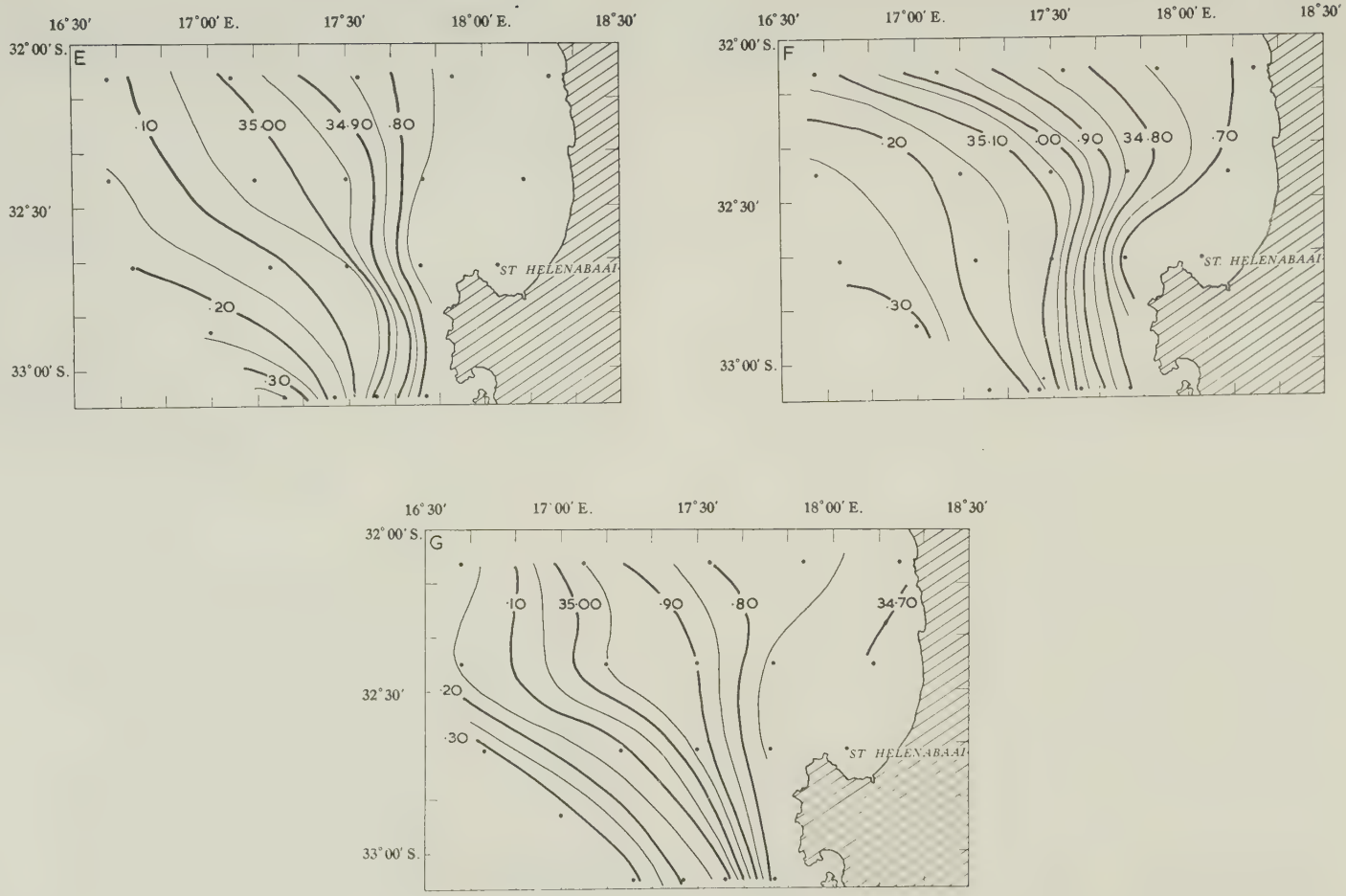

PLATE 22.—0–50 metres mean integral salinities for Summer: (E) 1954/55, (F) 1955/56, (G) 1956/57.

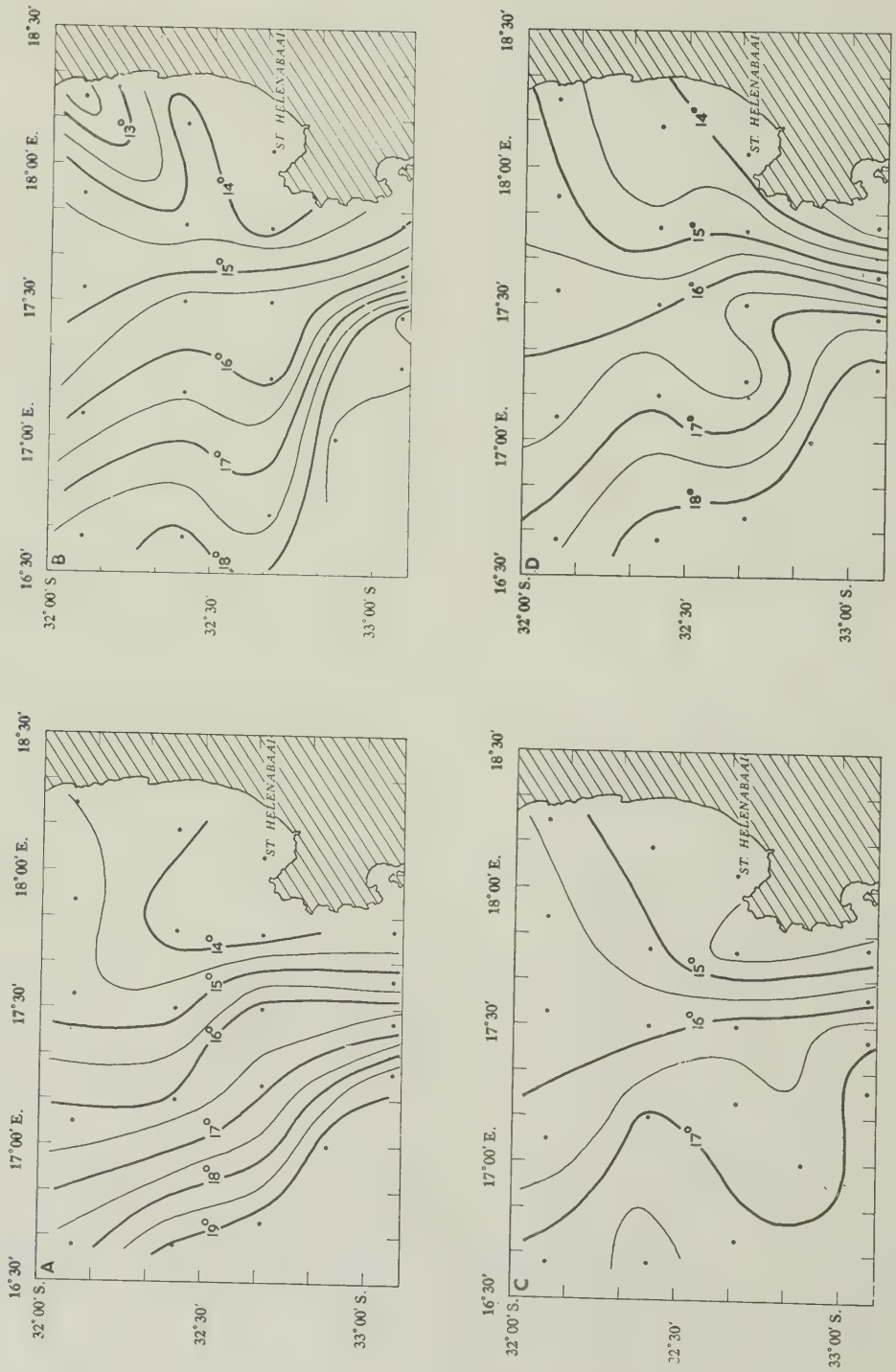

PLATE 23.—Surface temperatures for Autumn: (A) 1951, (B) 1952, (C) 1953, (D) 1954.

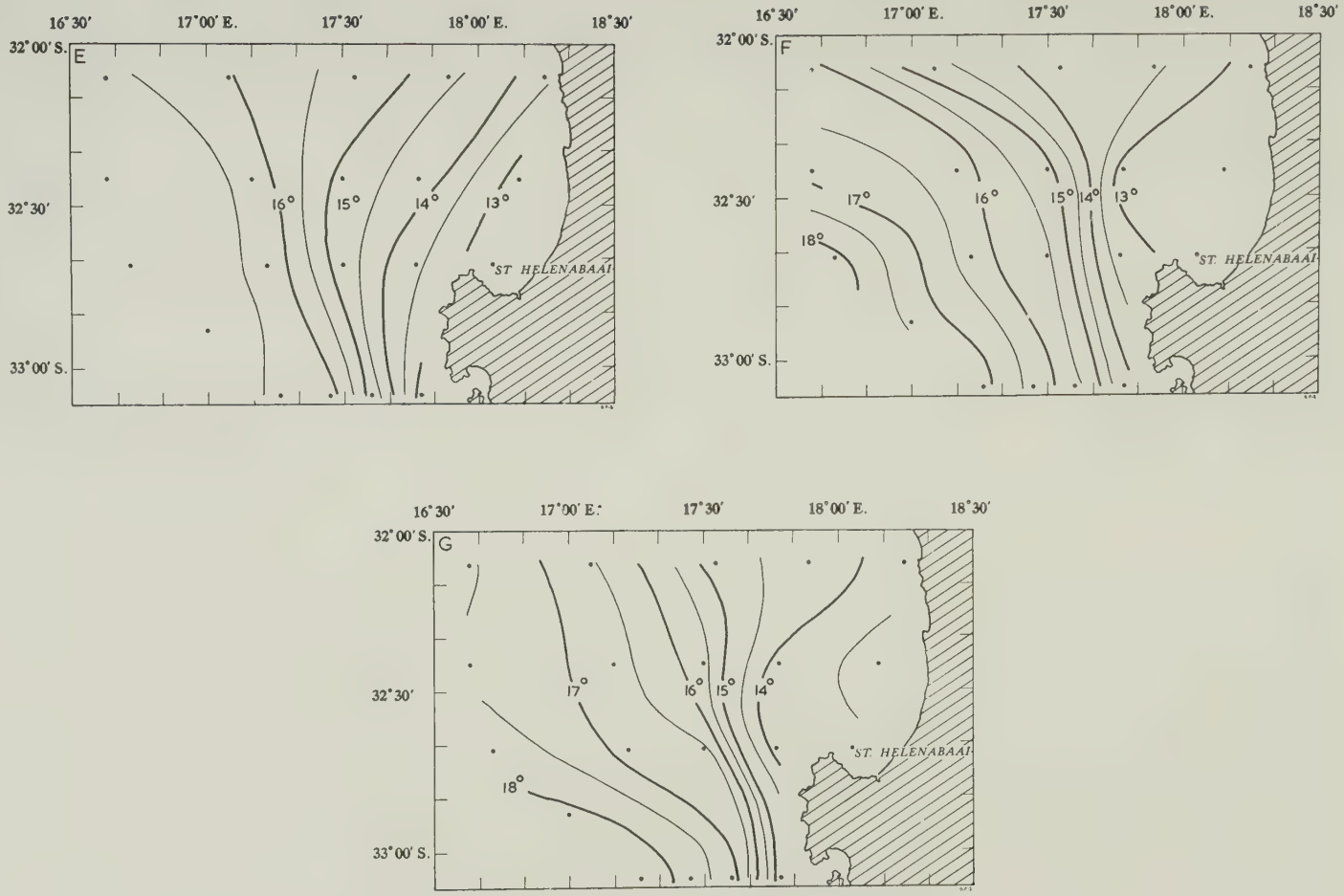

PLATE 23.—Surface temperatures for Autumn: (E) 1955, (F) 1956, (G) 1957.

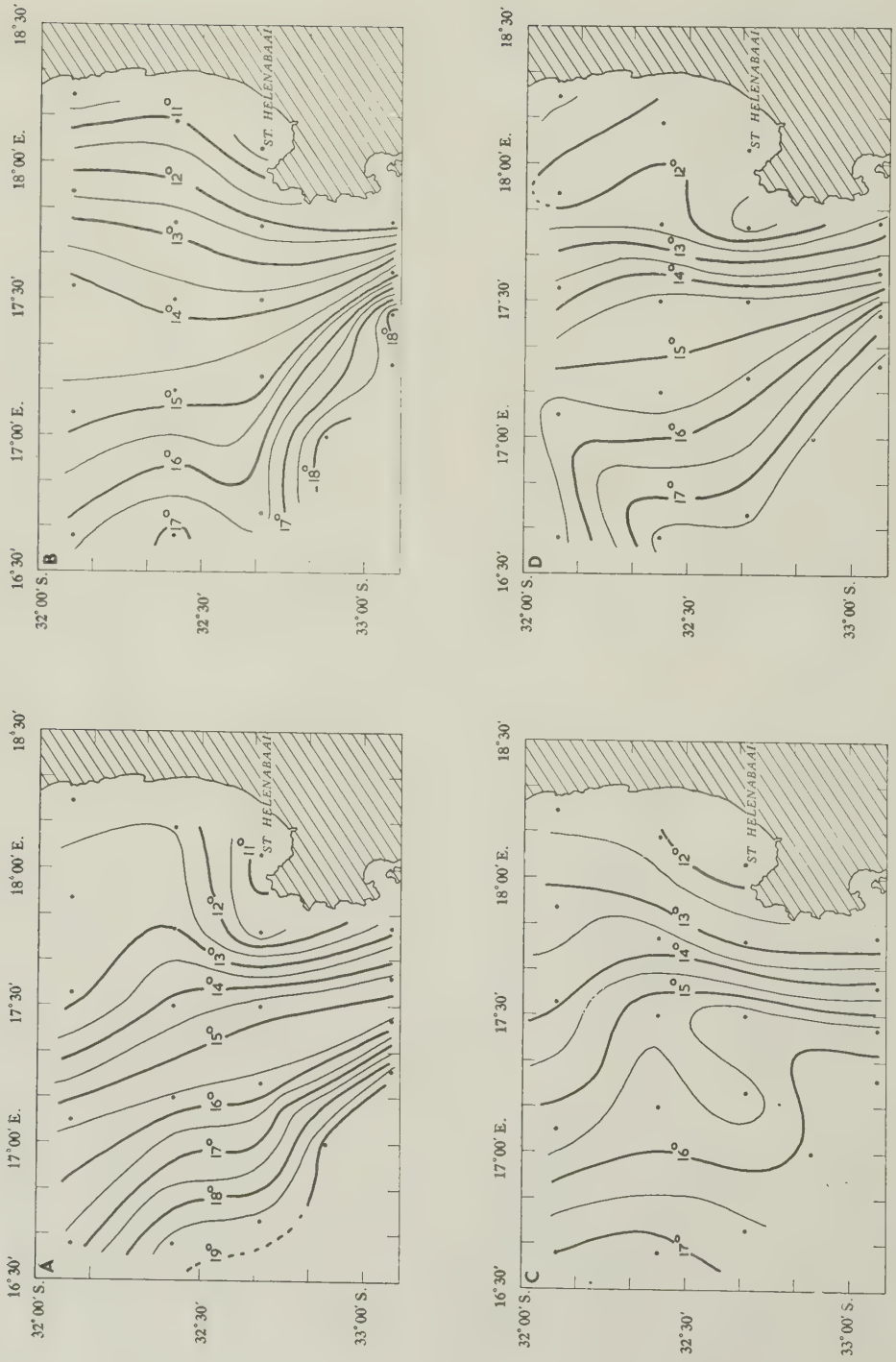

PLATE 24.—20 metres temperatures for Autumn: (A) 1951, (B) 1952, (C) 1953, (D) 1954.

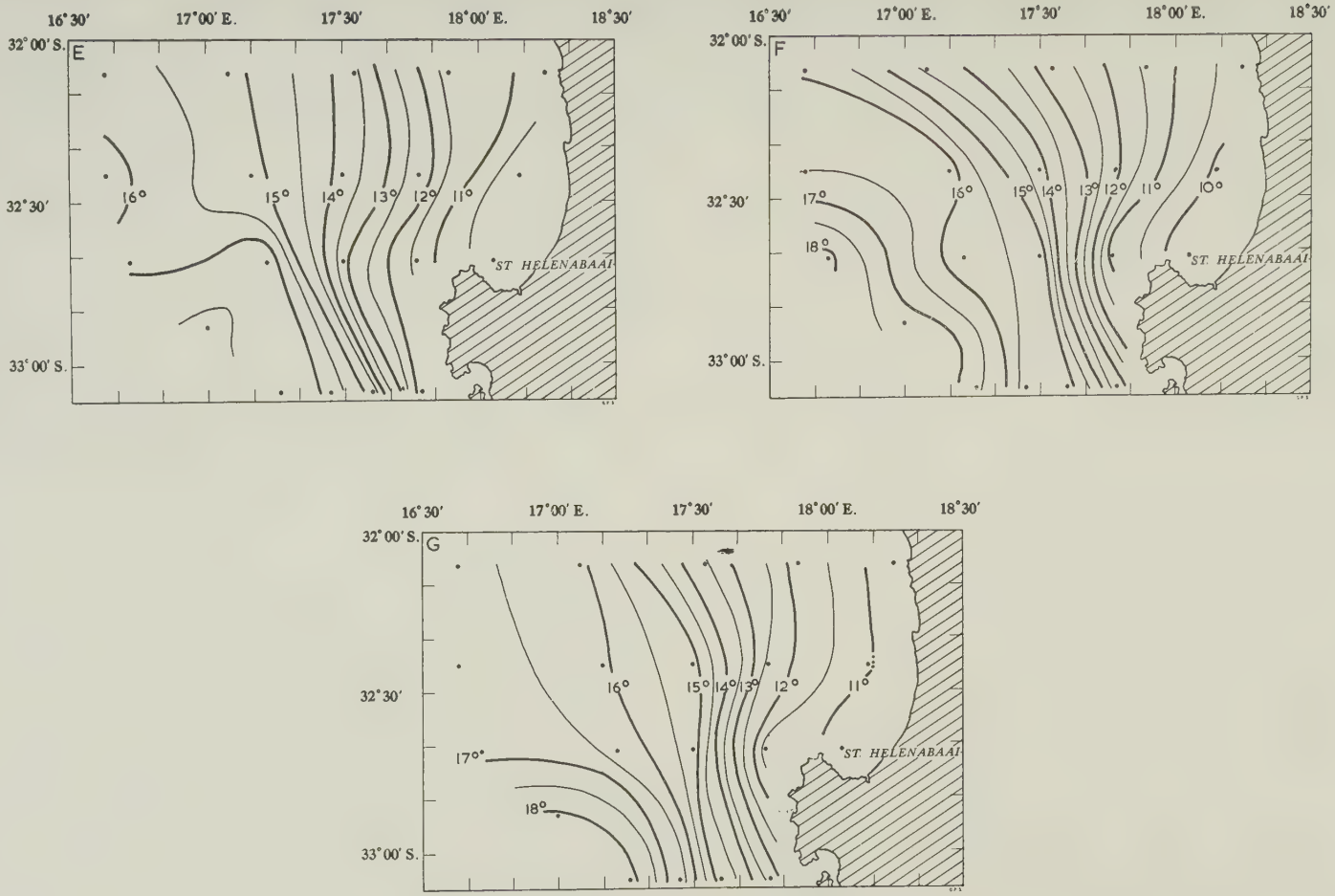

PLATE 24.—20 metres temperatures for Autumn: (E) 1955, (F) 1956, (G) 1957.

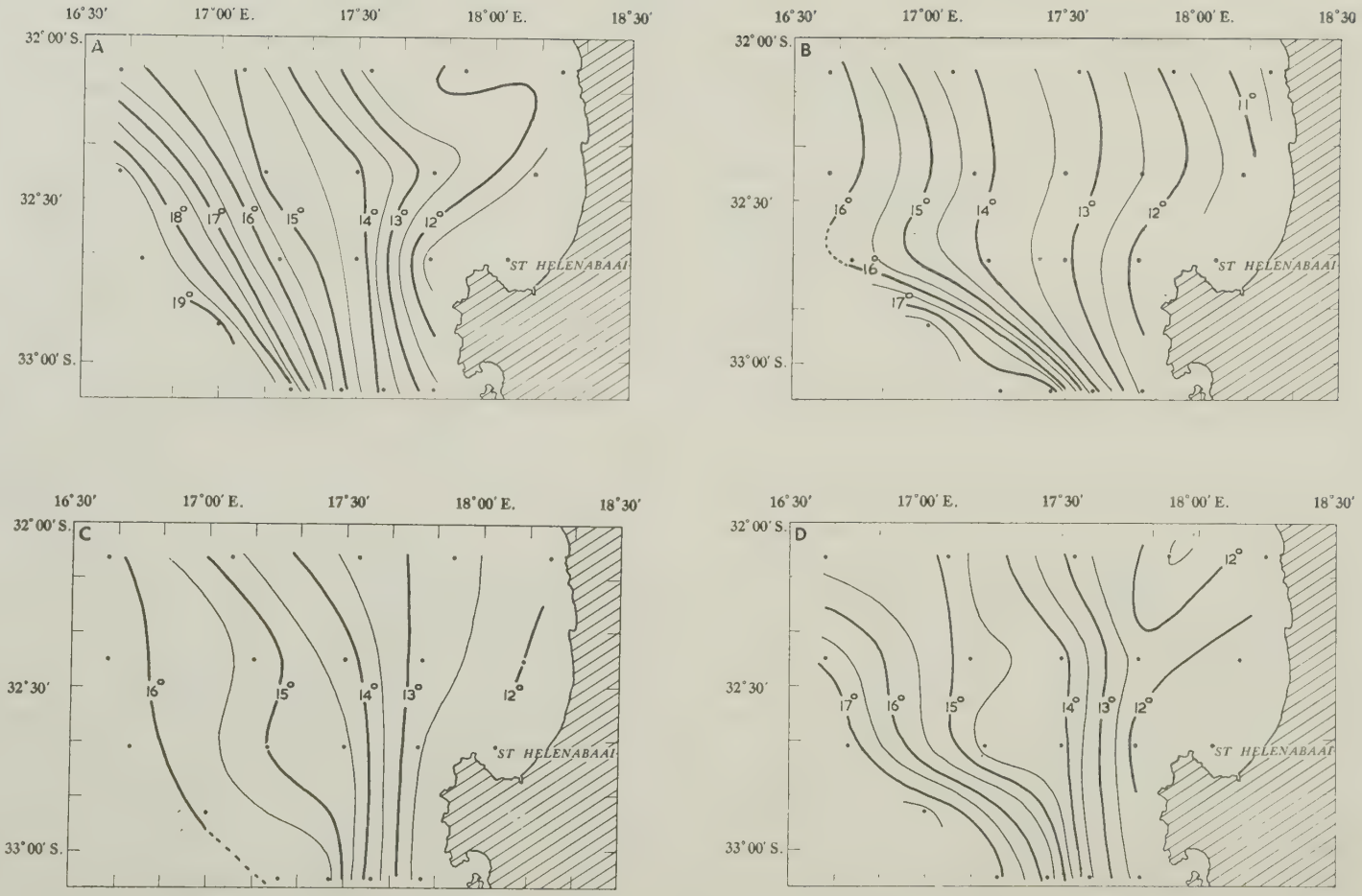

PLATE 25.—0–50 metres mean integral temperatures for Autumn: (A) 1951, (B) 1952, (C) 1953, (D) 1954.

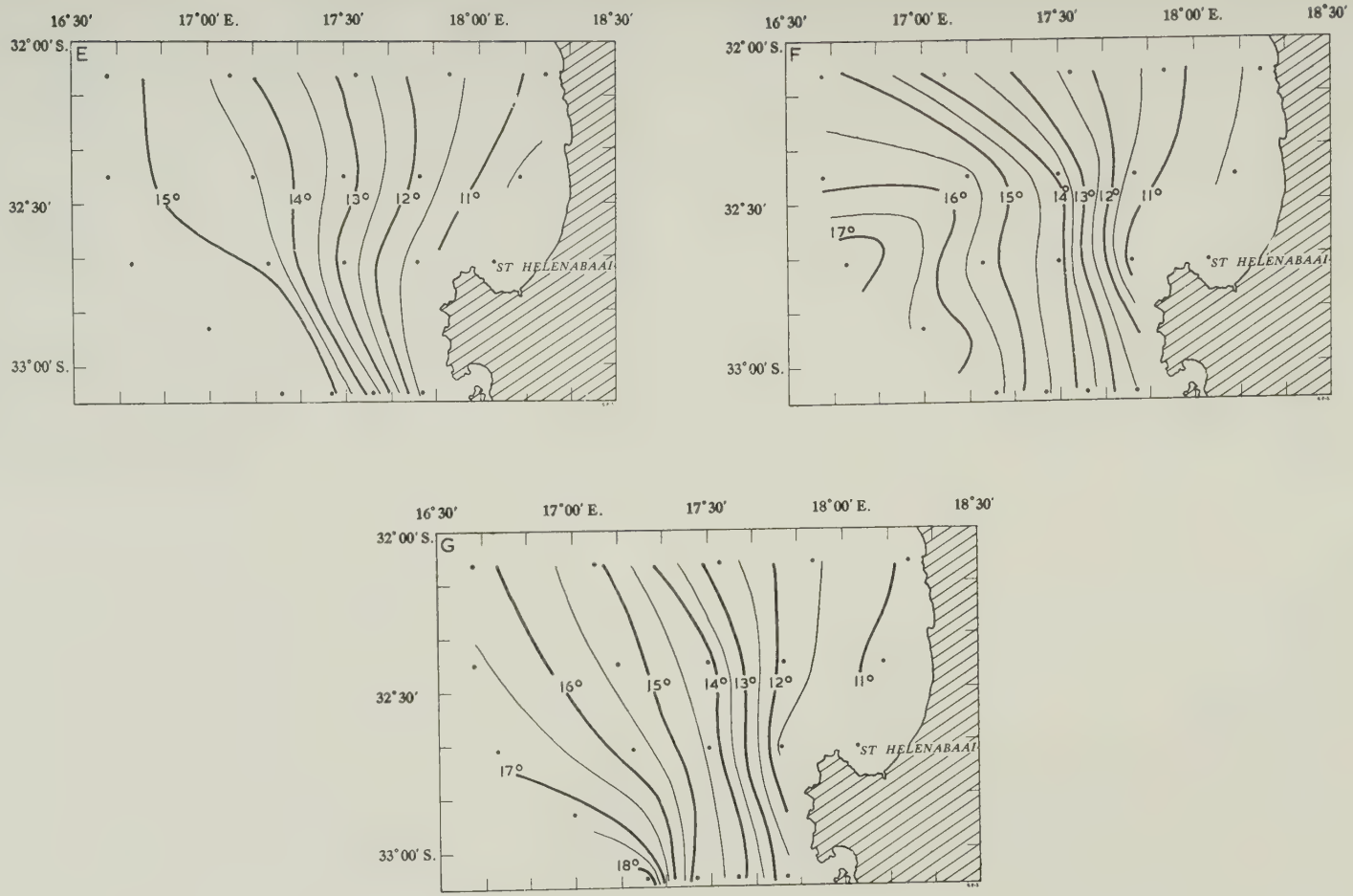

PLATE 25.—0–50 metres mean integral temperatures for Autumn: (E) 1955, (F) 1956, (G) 1957.

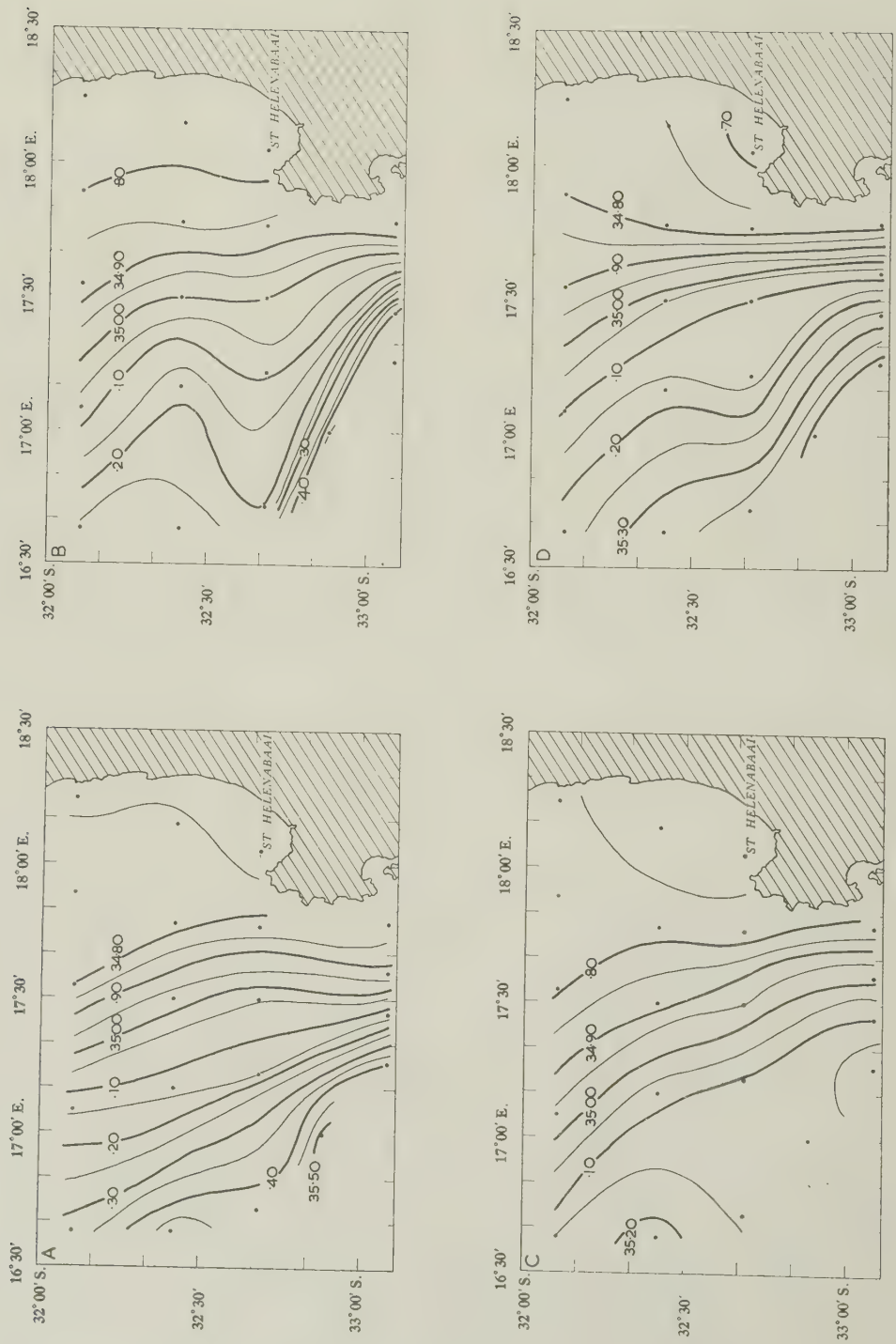

PLATE 26.—Surface salinities for Autumn: (A) 1951, (B) 1952, (C) 1953, (D) 1954.

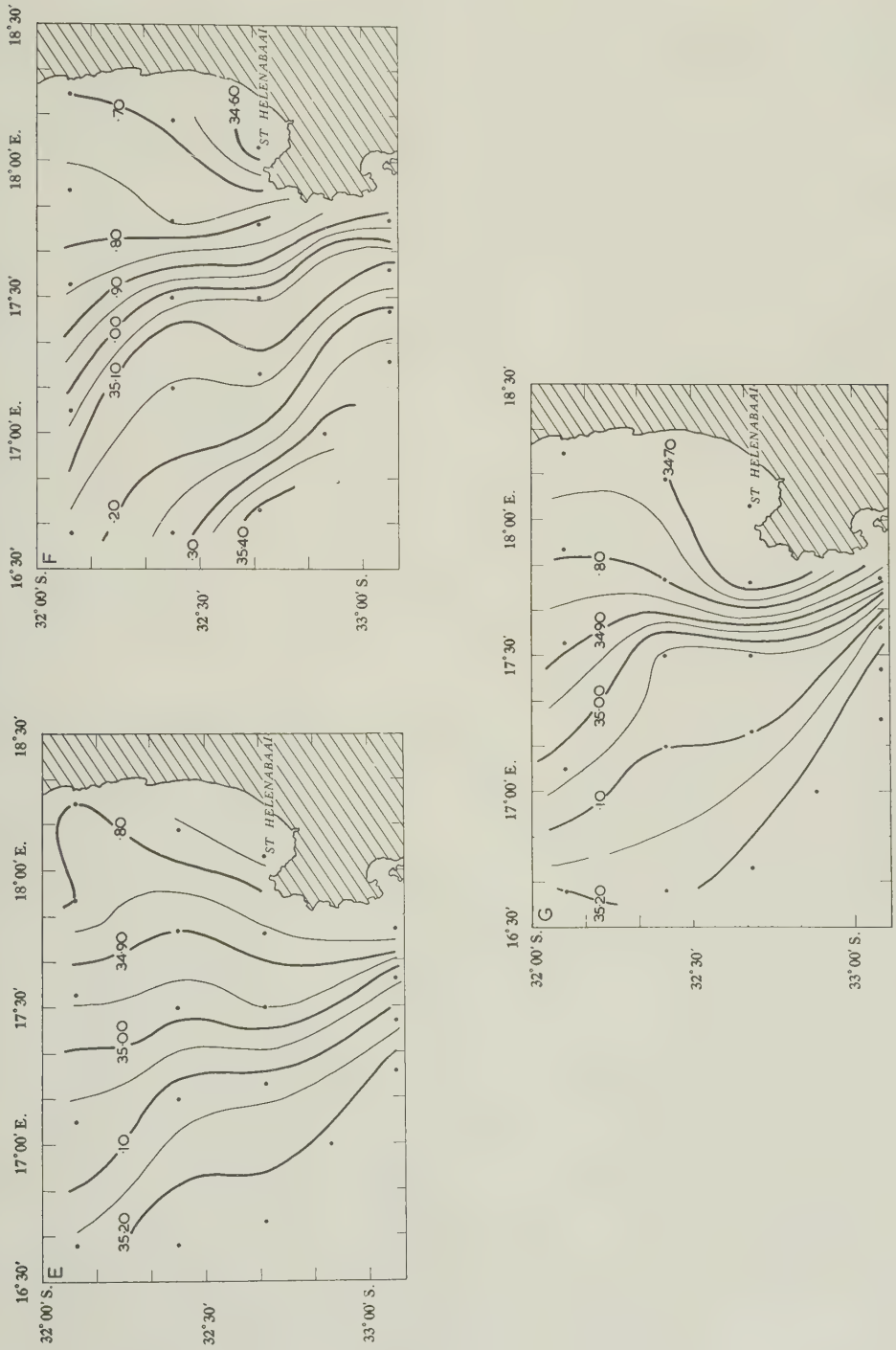

PLATE 26.—Surface salinities for Autumn: (E) 1955, (F) 1956, (G) 1957.

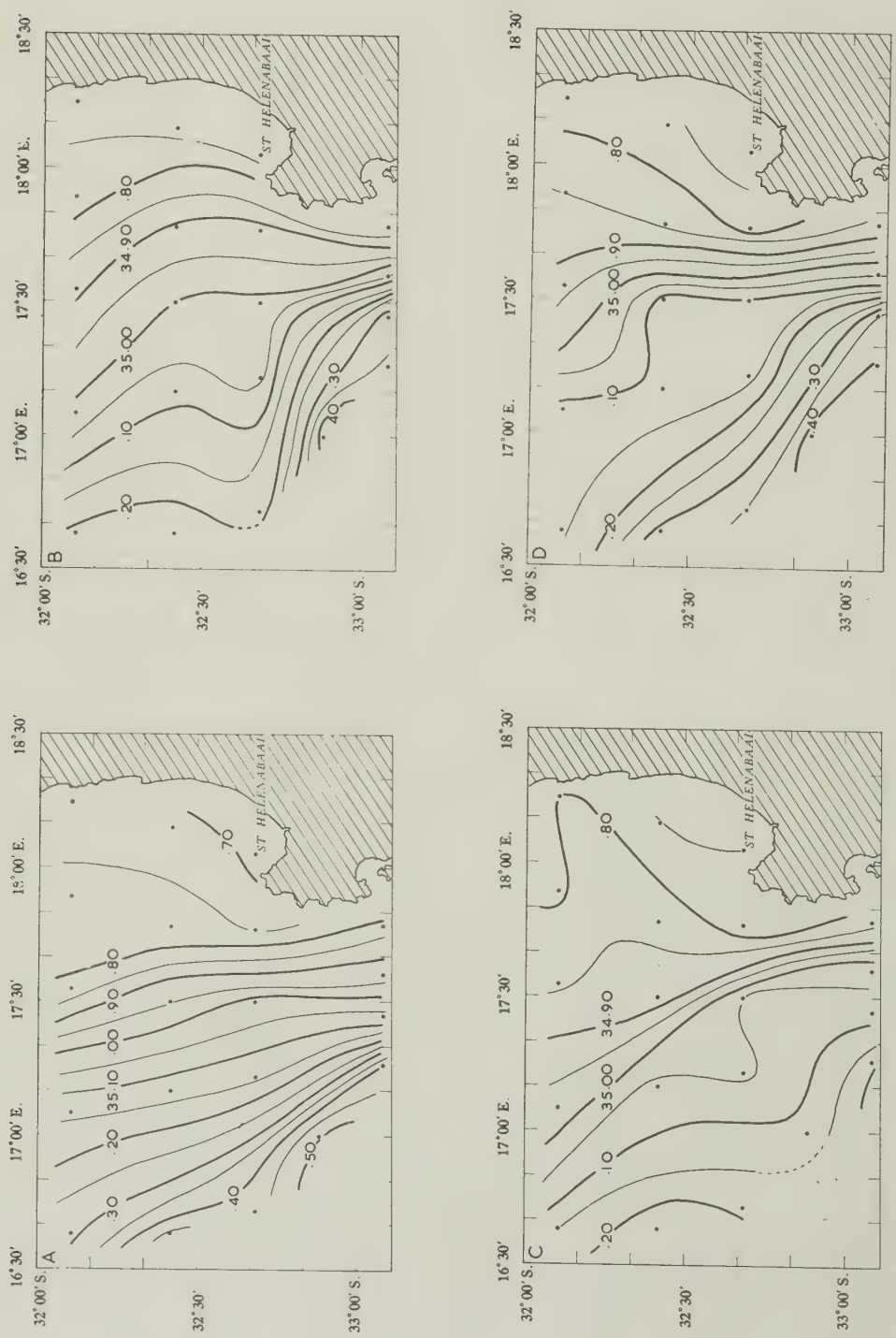

PLATE 27.—20 metres salinities for Autumn: (A) 1951, (B) 1952, (C) 1953, (D) 1954.

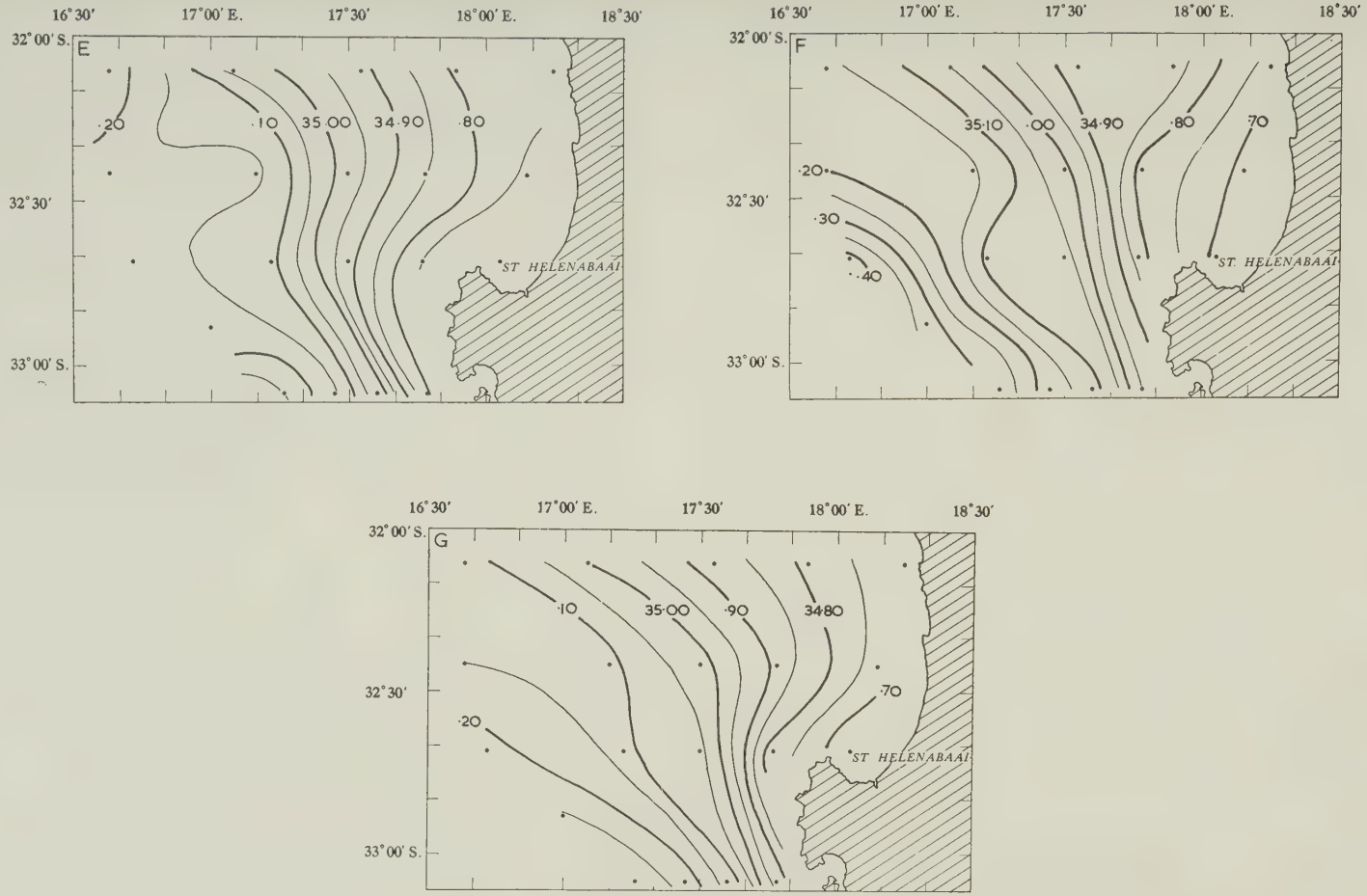

PLATE 27.—20 metres salinities for Autumn: (E) 1955, (F) 1956, (G) 1957.

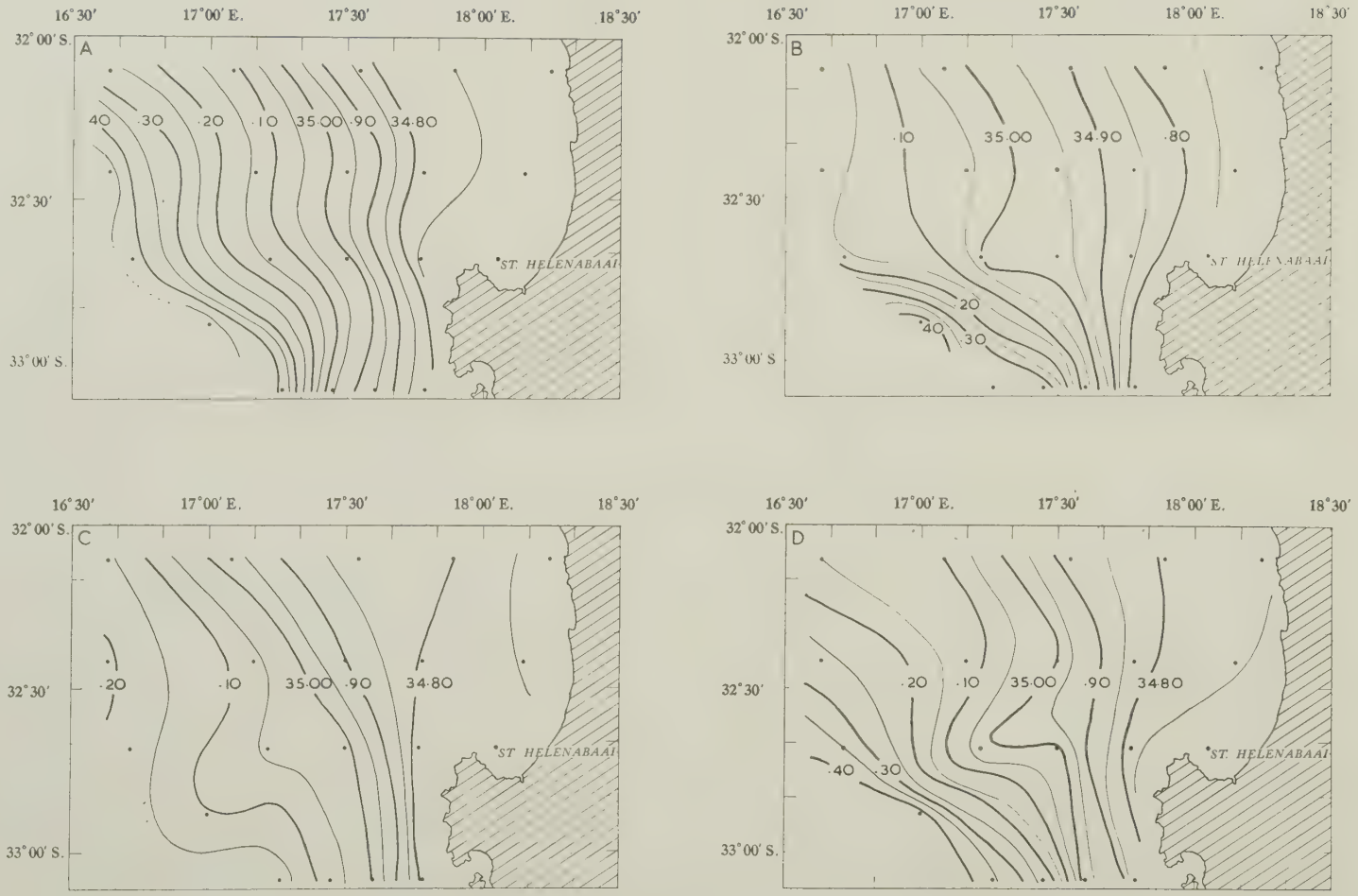

PLATE 28.—0–50 metres mean integral salinities for Autumn: (A) 1951, (B) 1952, (C) 1953, (D) 1954.

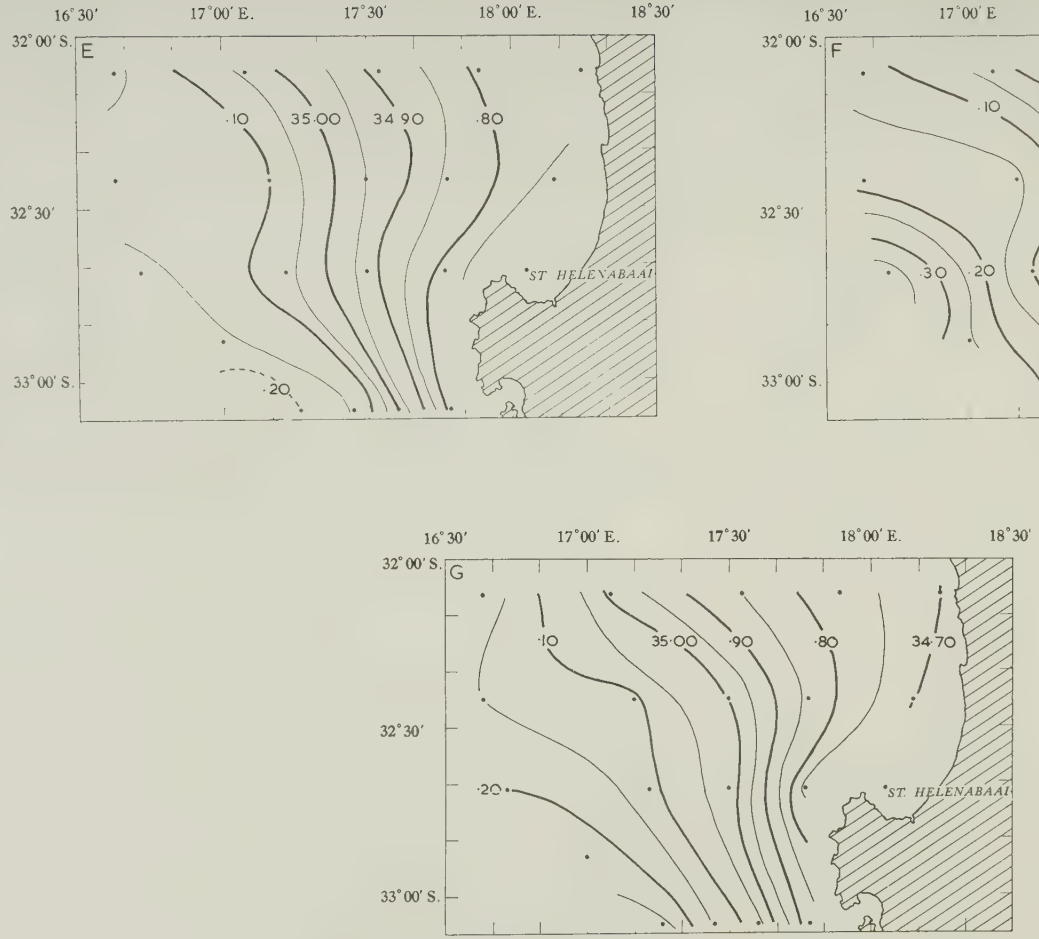

PLATE 28.—0–50 metres mean integral salinities for Autumn: (E) 1955, (F) 1956, (G) 1957.

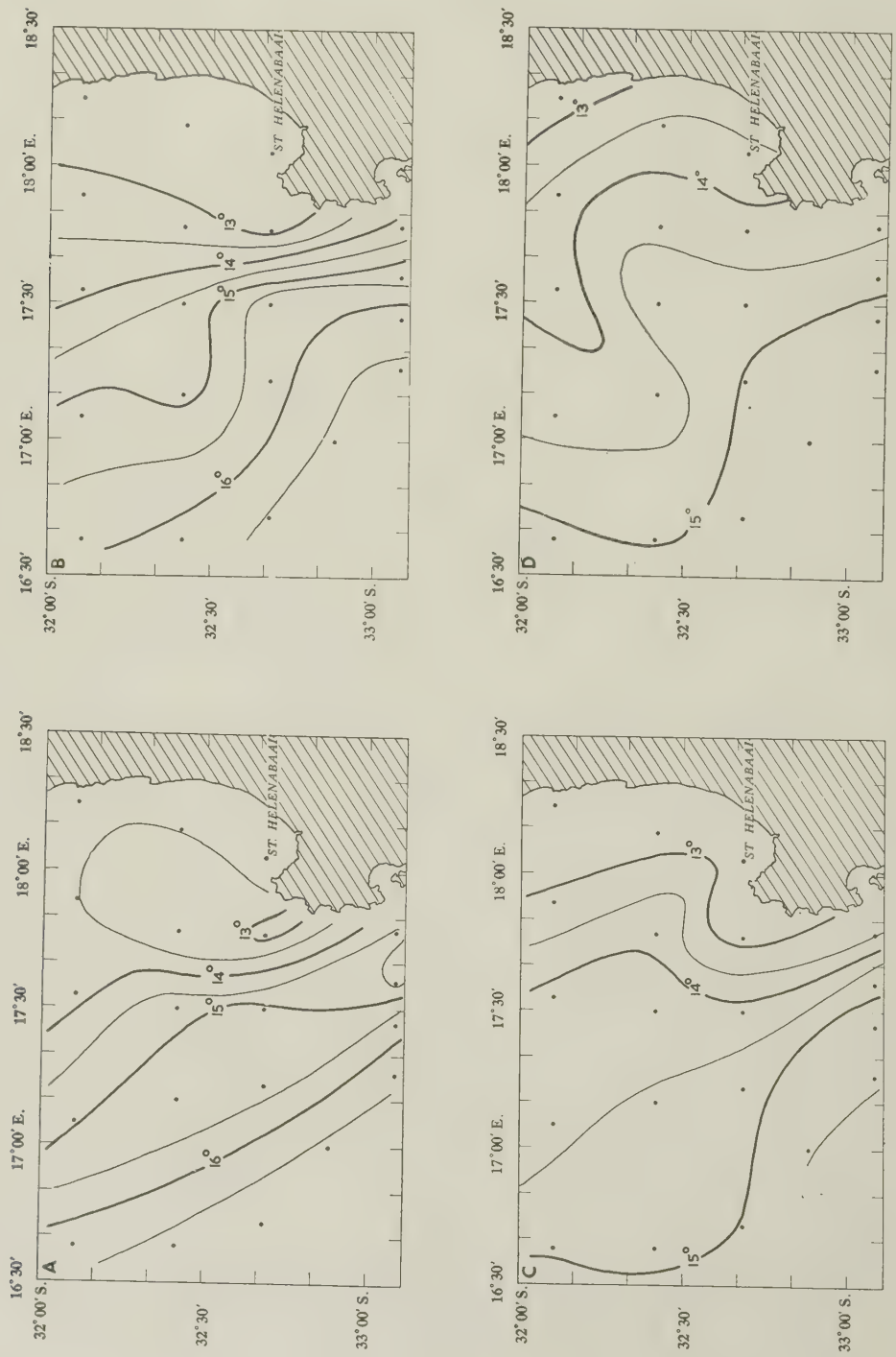

PLATE 29.—Surface temperatures for Winter: (A) 1951, (B) 1952, (C) 1953, (D) 1954.

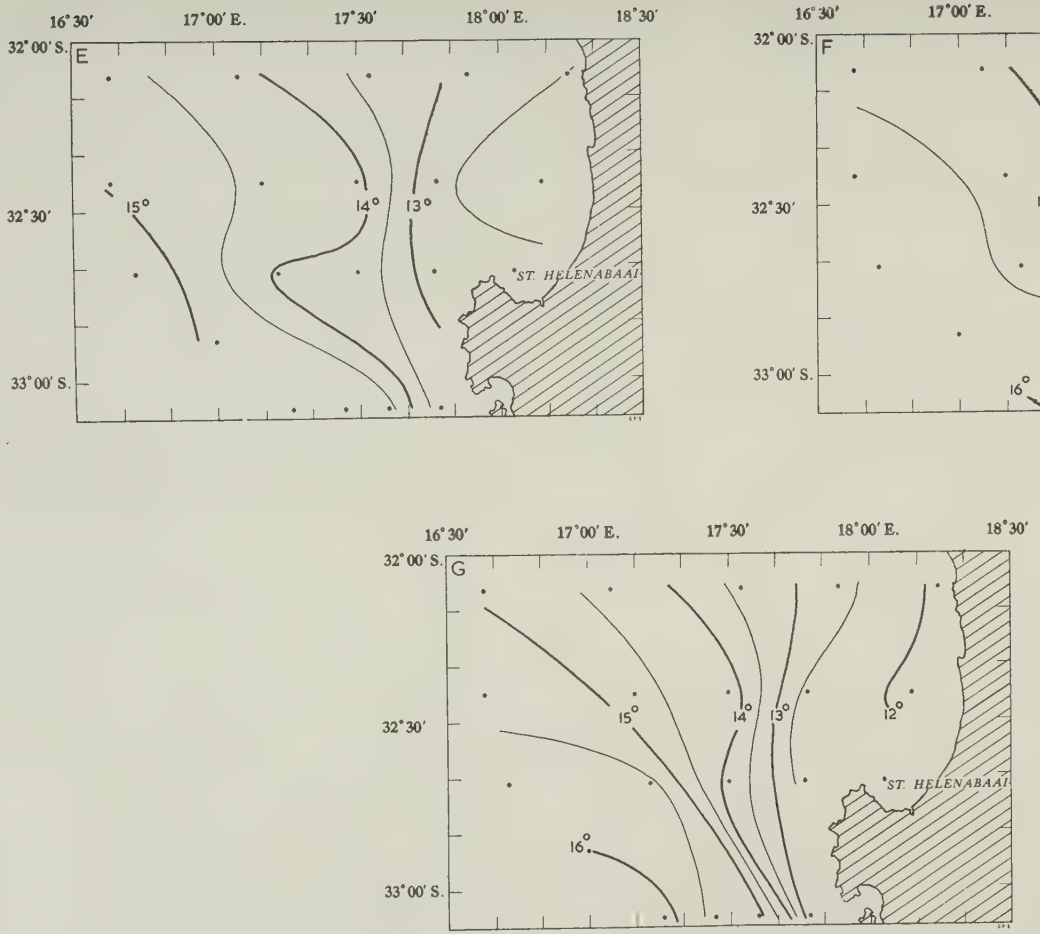

PLATE 29.—Surface temperatures for Winter: (E) 1955, (F) 1956, (G) 1957.

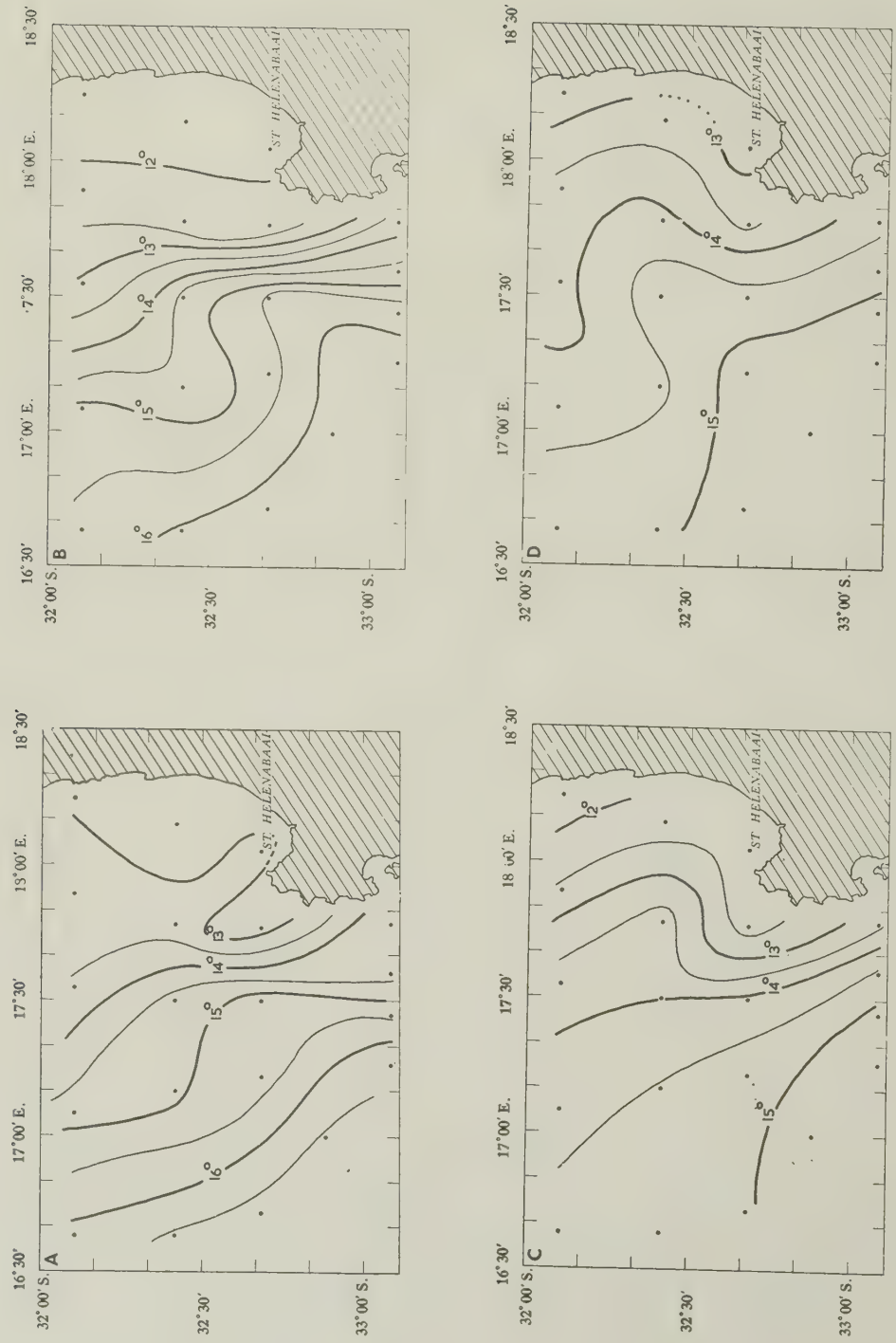

PLATE 30.—20 metres temperatures for Winter: (A) 1951, (B) 1952, (C) 1953, (D) 1954.

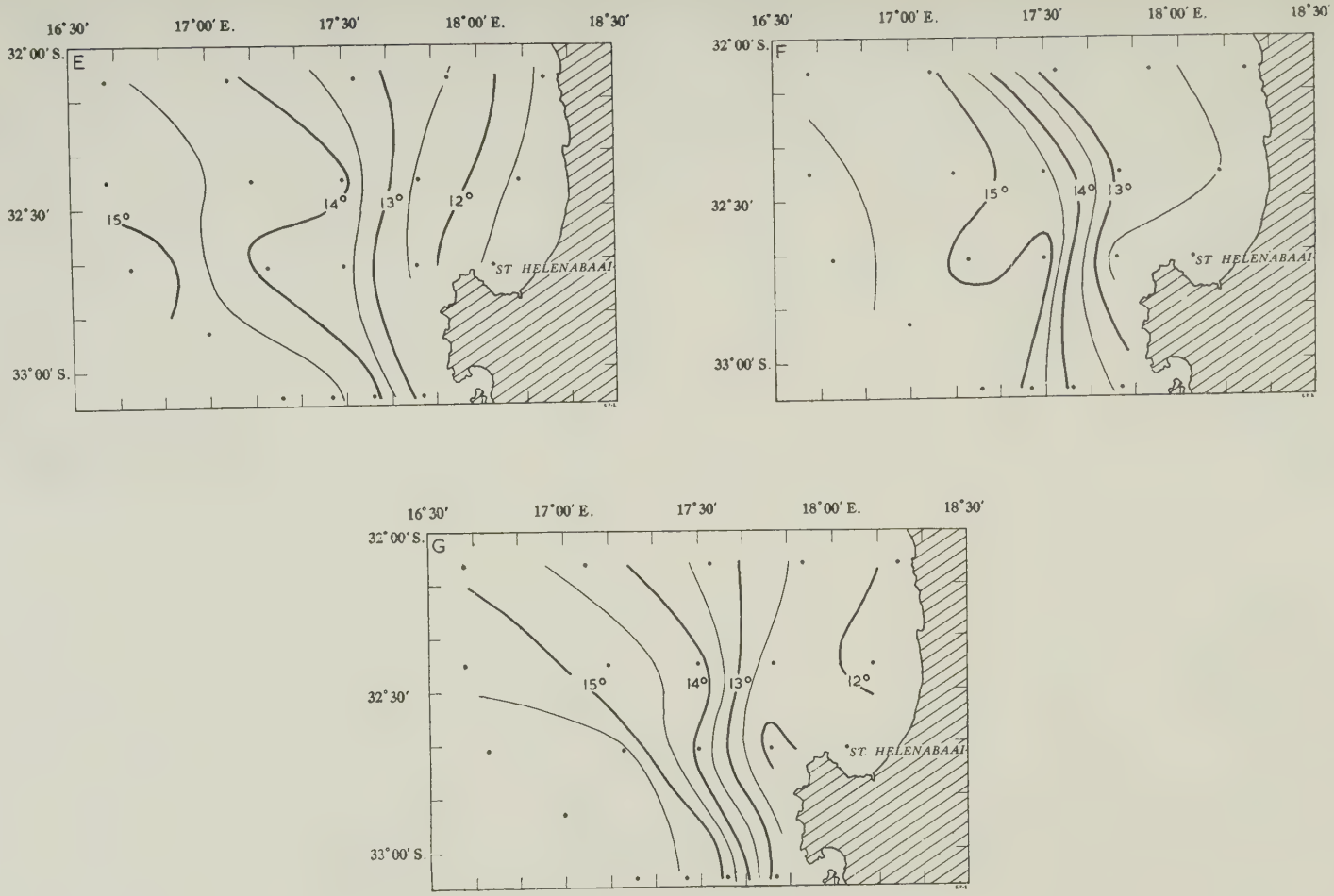

PLATE 30.—20 metres temperature for Winter: (E) 1955, (F) 1956, (G) 1957.

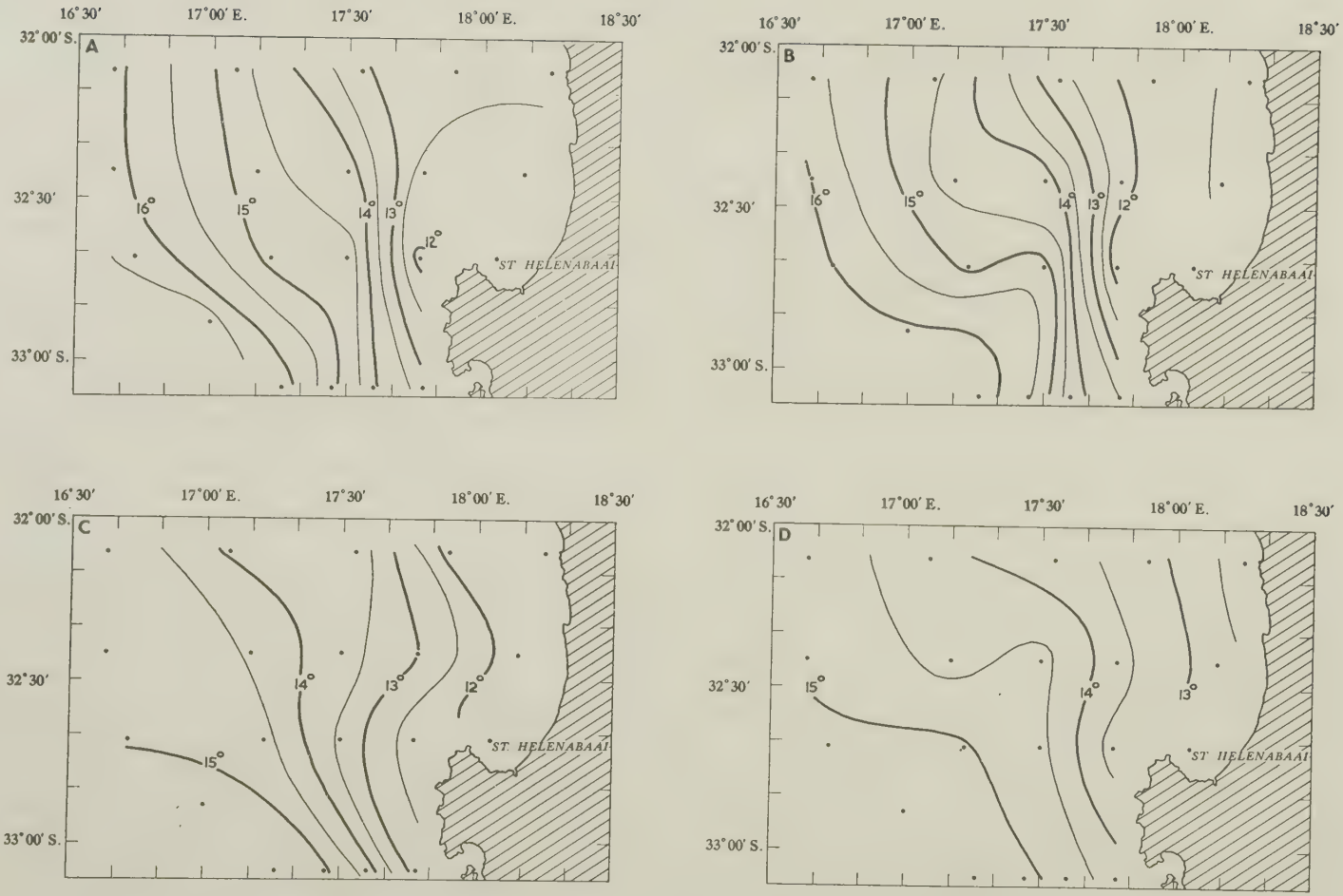

PLATE 31.—0–50 metres mean integral temperatures for Winter: (A) 1951, (B) 1952, (C) 1953, (D) 1954.

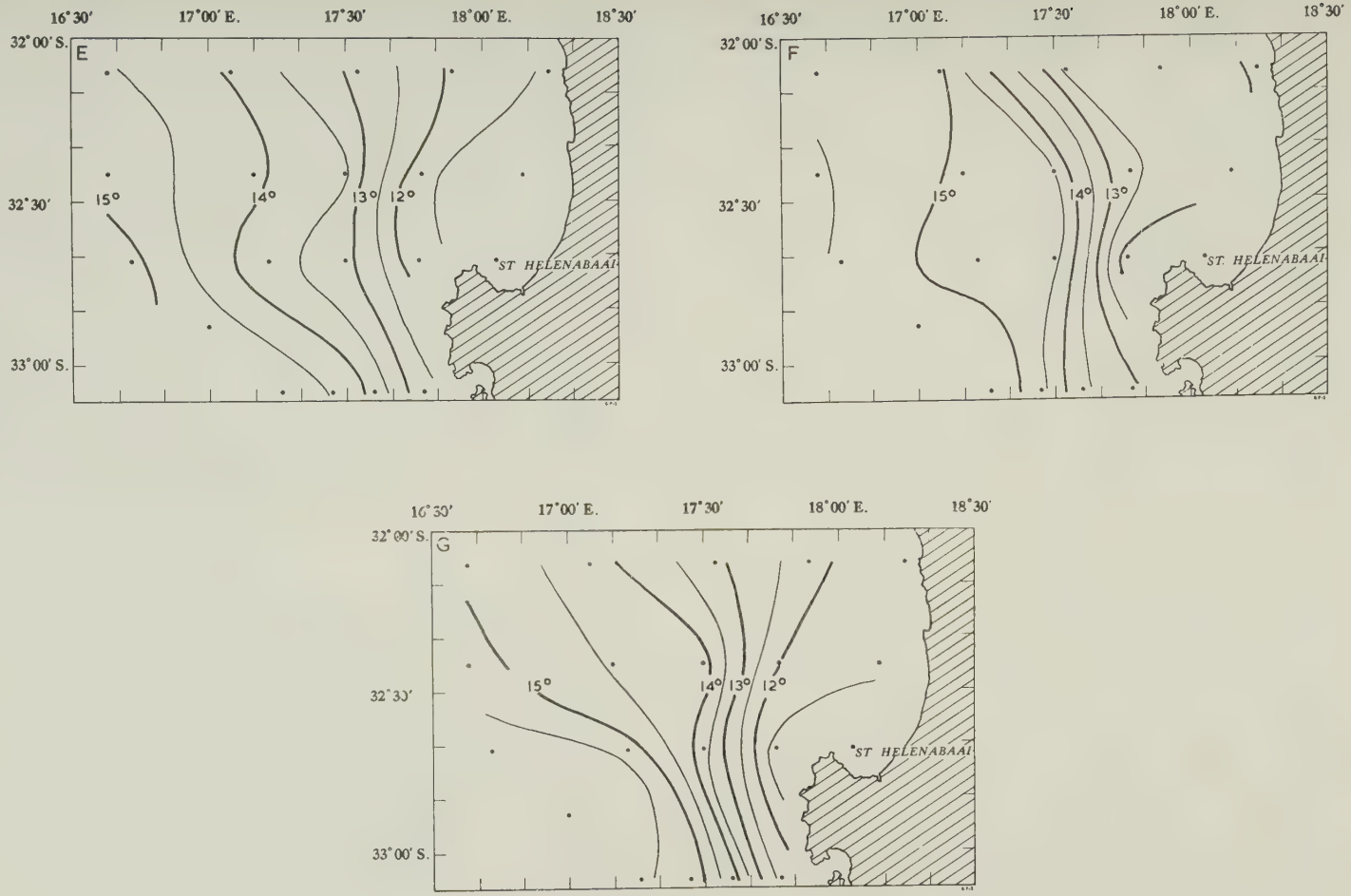

PLATE 31.—0–50 metres mean integral temperatures for Winter: (E) 1955, (F) 1956, (G) 1957.

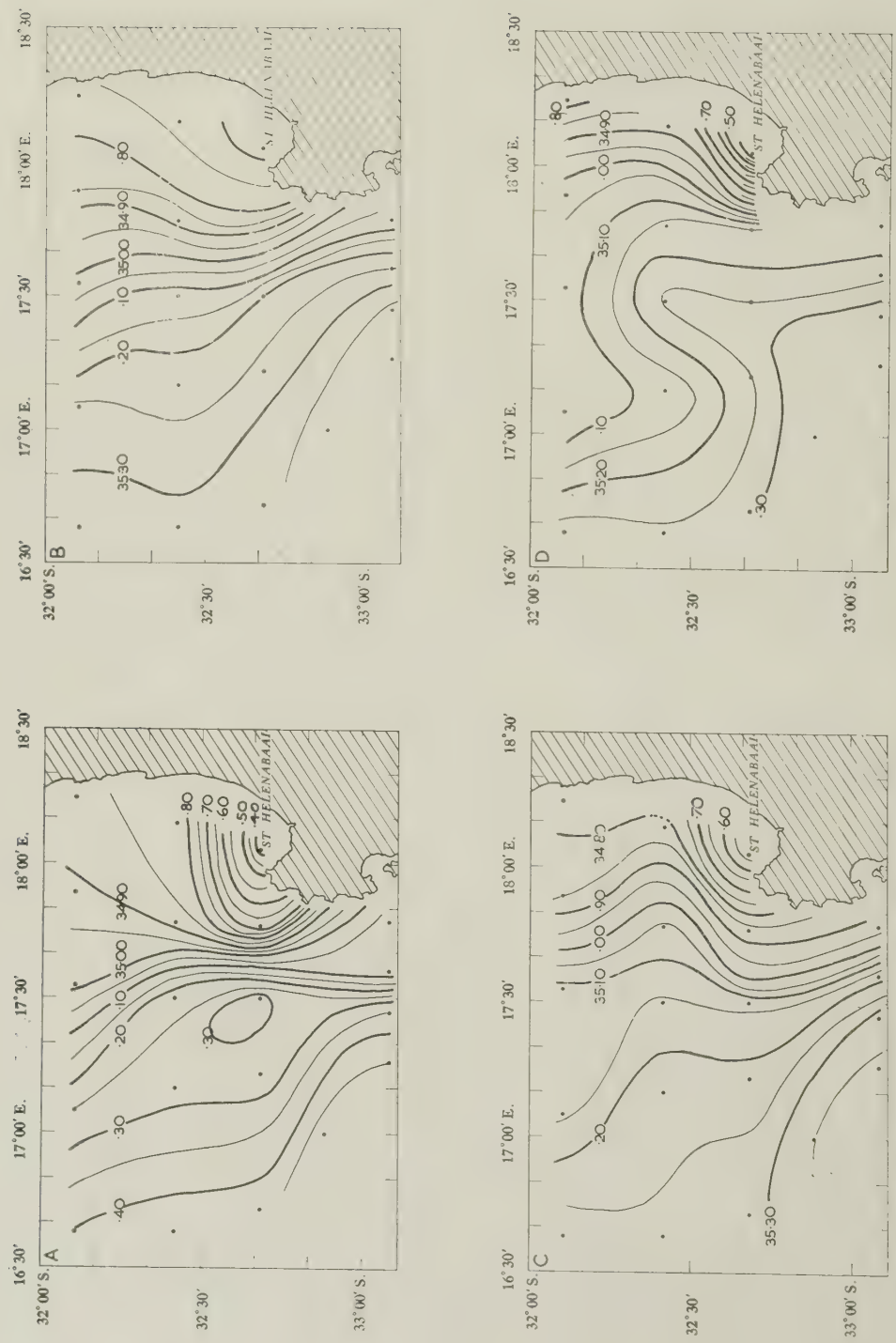

PLATE 32.—Surface salinities for Winter: (A) 1951, (B) 1952, (C) 1953, (D) 1954.

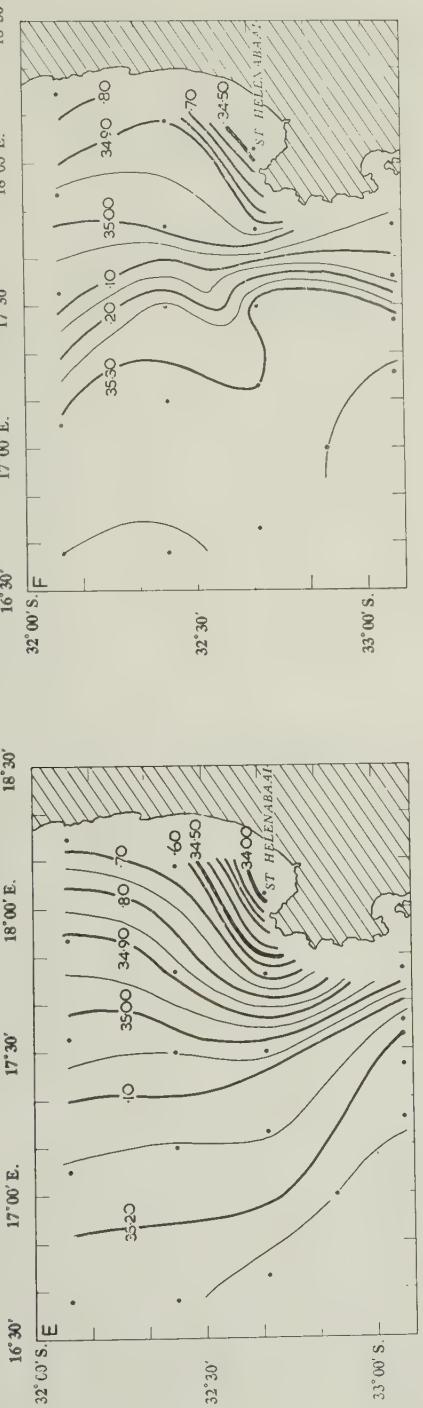

PLATE 32.—Surface salinities for Winter: (E) 1955, (F) 1956, (G) 1957.

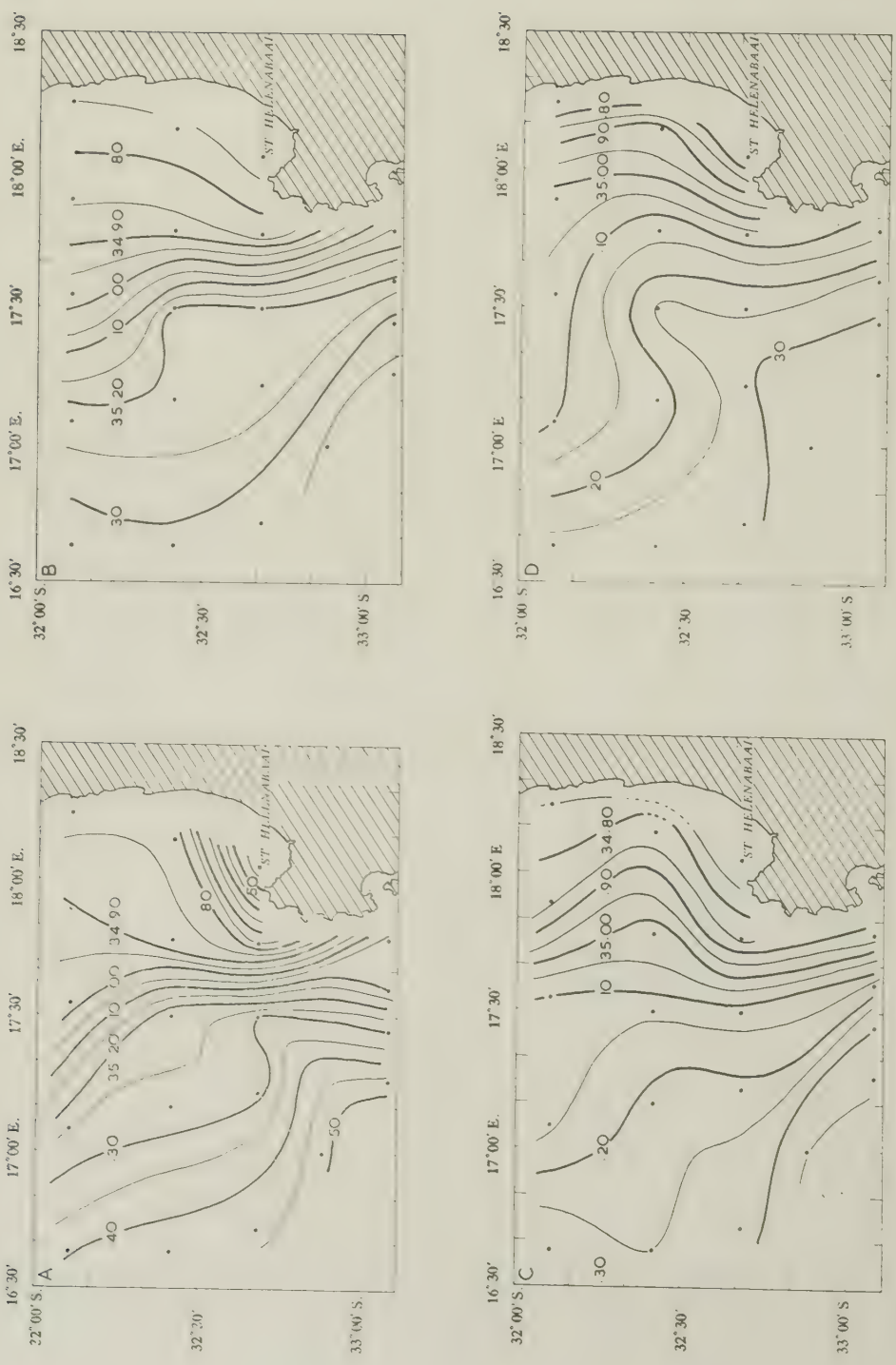

PLATE 33.—20 metres salinities for Winter: (A) 1951, (B) 1952, (C) 1953, (D) 1954.

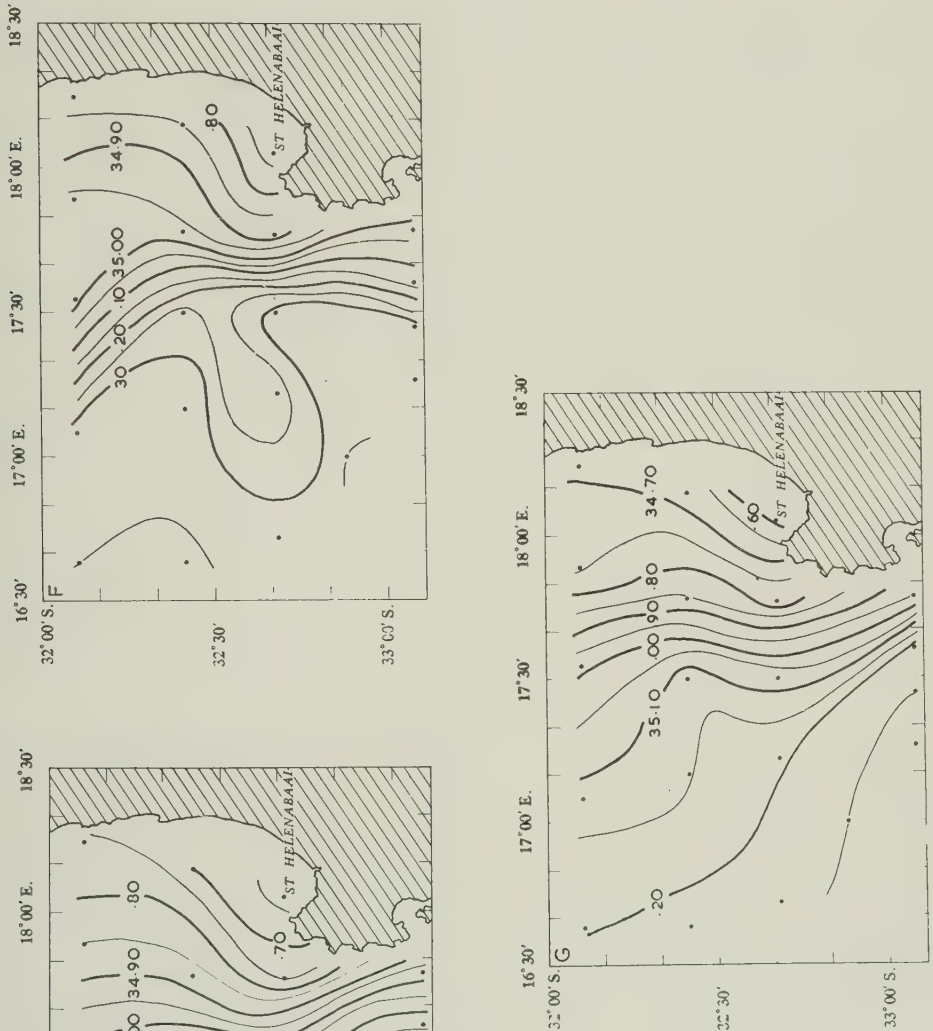

PLATE 33.—20 metres salinities for Winter: (E) 1955, (F) 1956, (G) 1957.

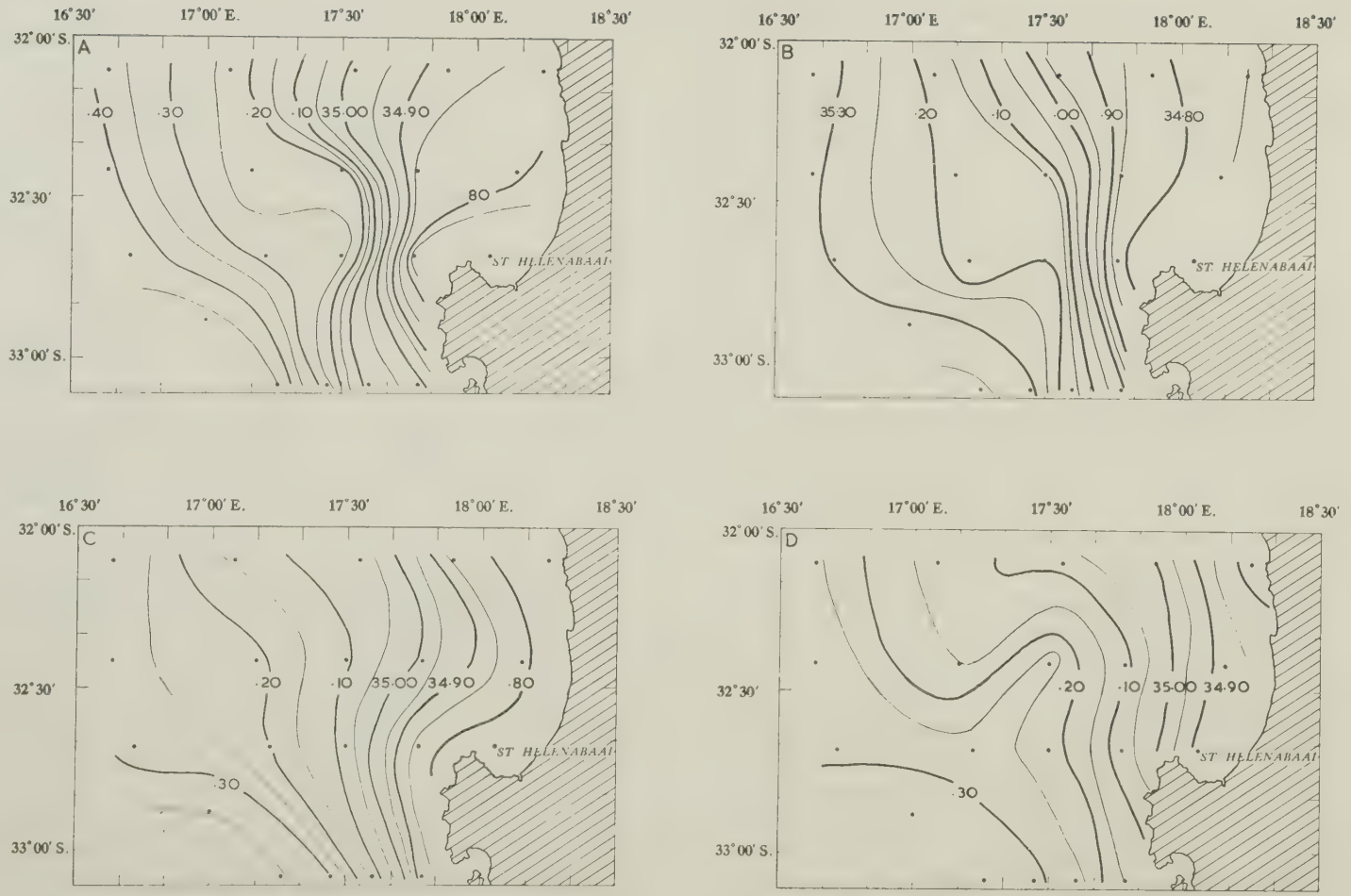

PLATE 34.— 0-50 metres mean integral salinities for Winter: (A) 1951, (B) 1952, (C) 1953, (D) 1954.

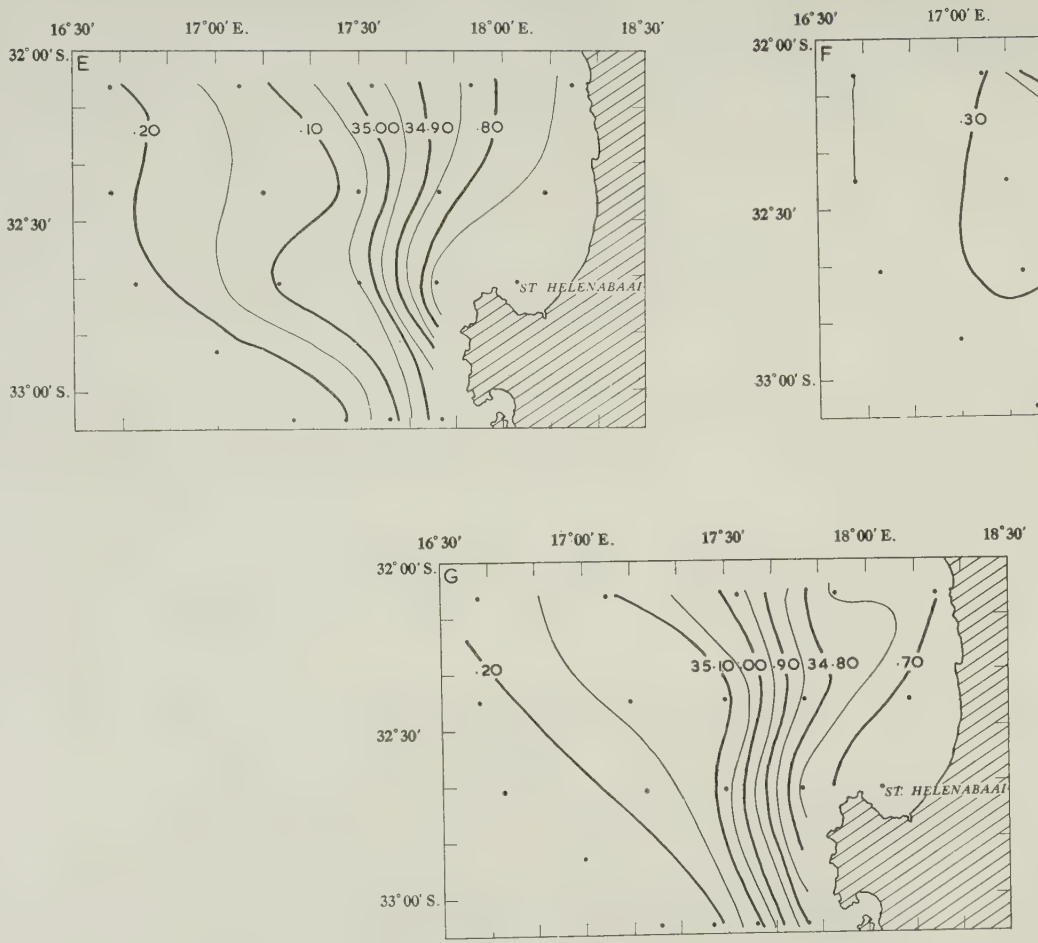

PLATE 34.—0–50 metres mean integral salinities for Winter: (E) 1955, (F) 1956, (G) 1957.

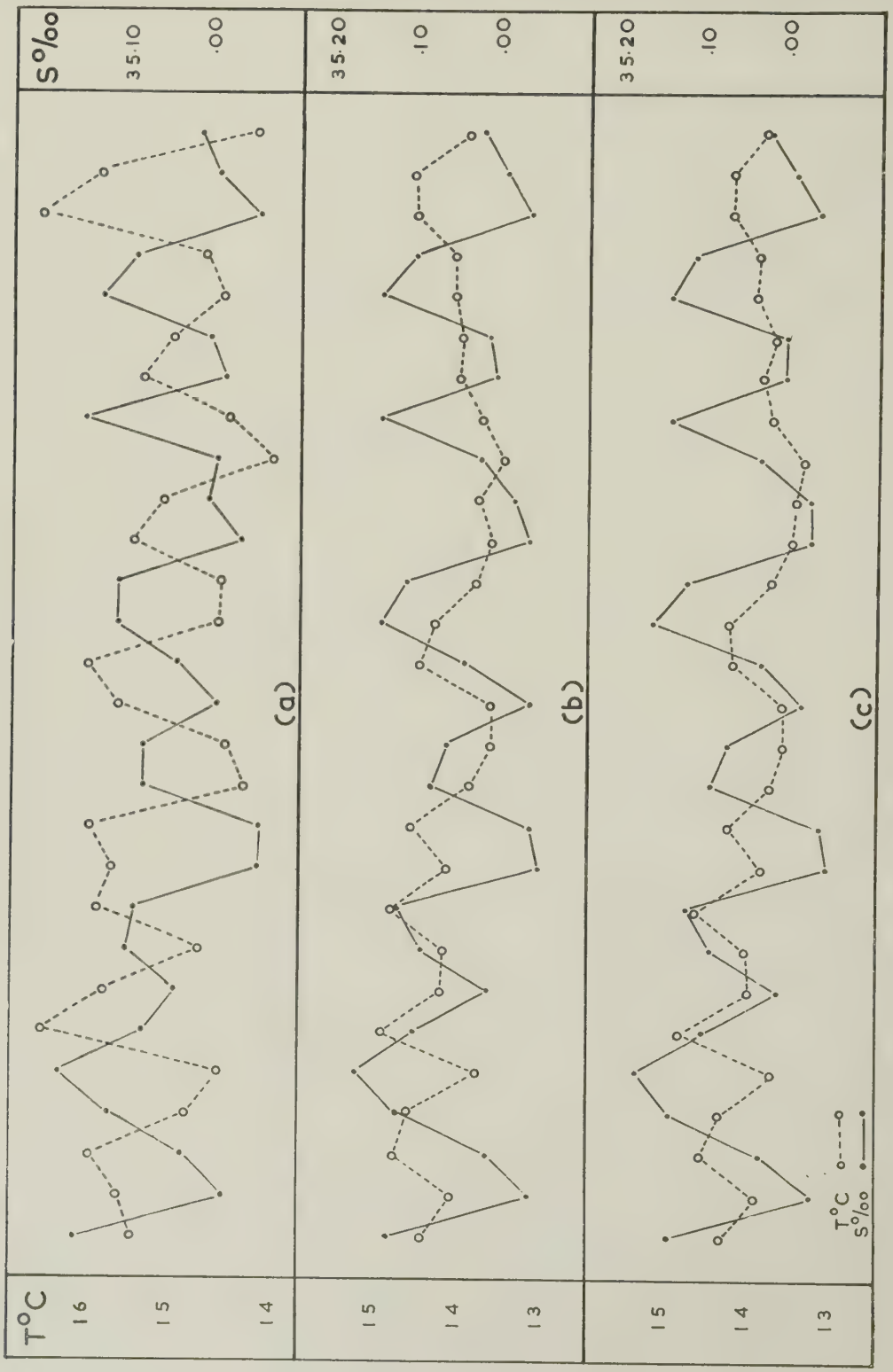

PLATE 35.—Seasonal variation of temperature and salinity for the whole area at (*a*) 0 metres, (*b*) 20 metres, and (*c*) 0–50 metres.

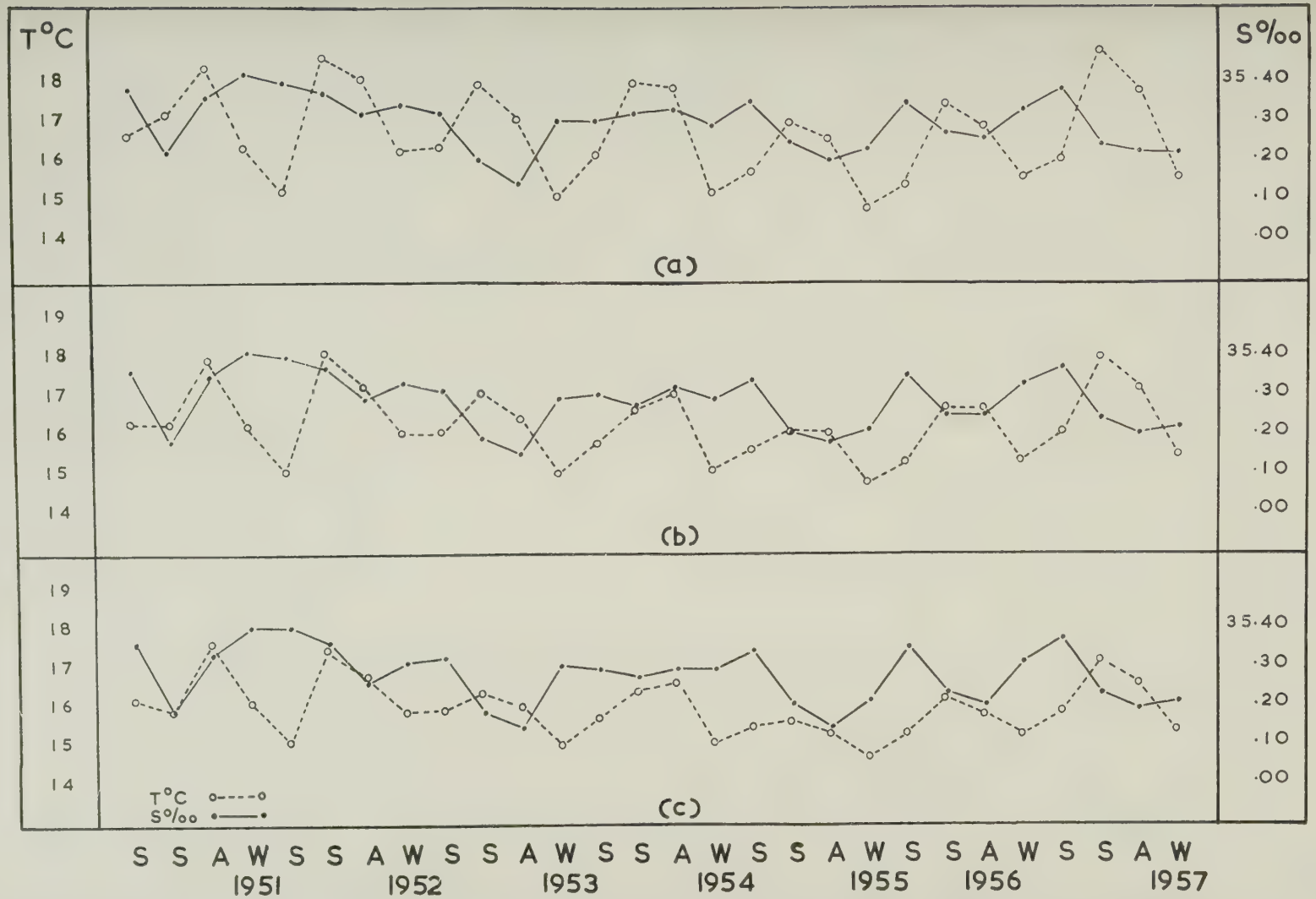

PLATE 36.—Seasonal variation of temperature and salinity for the outer area at (*a*) 0 metres, (*b*) 20 metres, and (*c*) 0–50 metres.

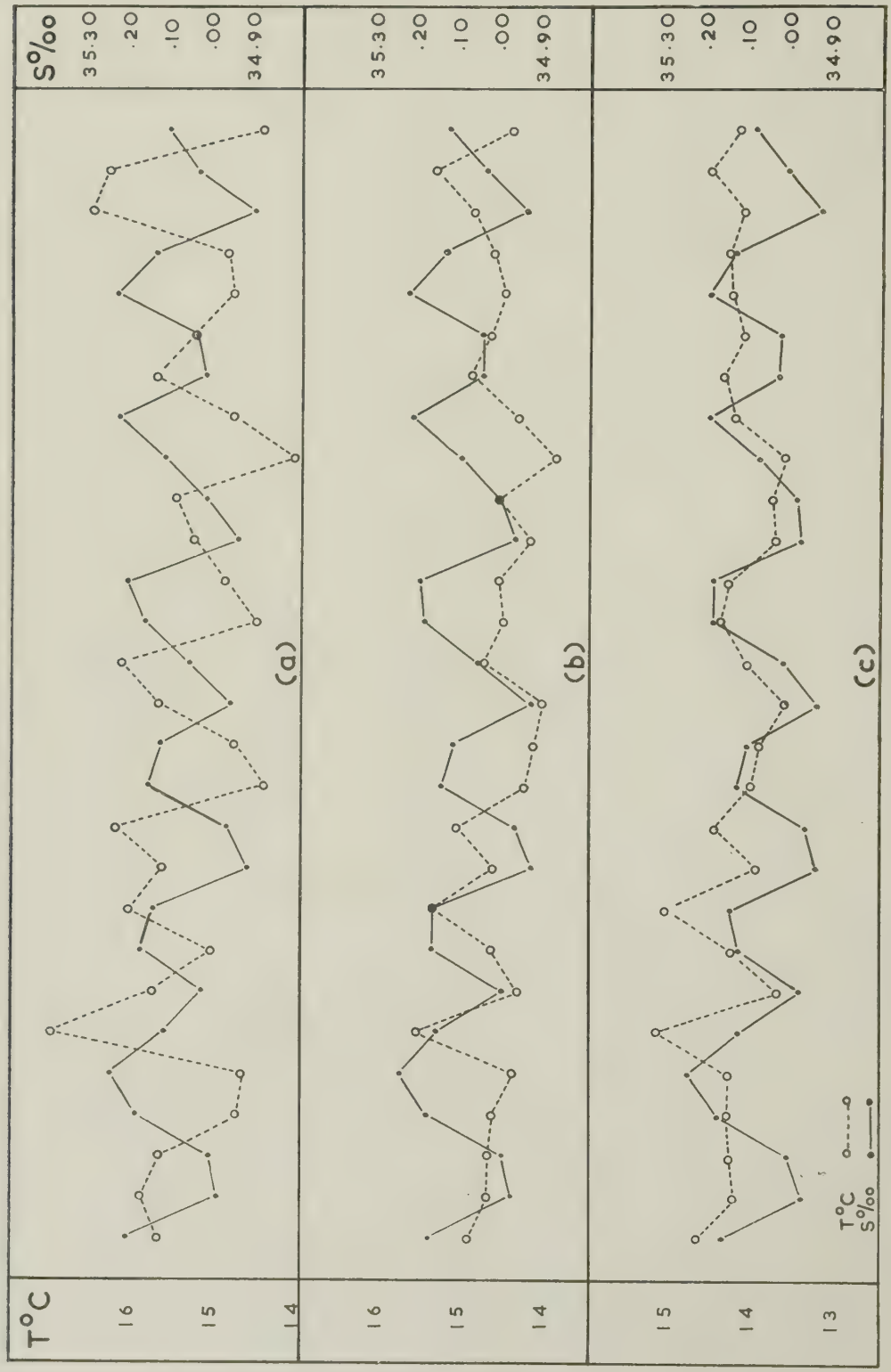

PLATE 37.—Seasonal variation of temperature and salinity for the intermediate area at (*a*) 0 metres, (*b*) 20 metres, and (*c*) 0–50 metres.

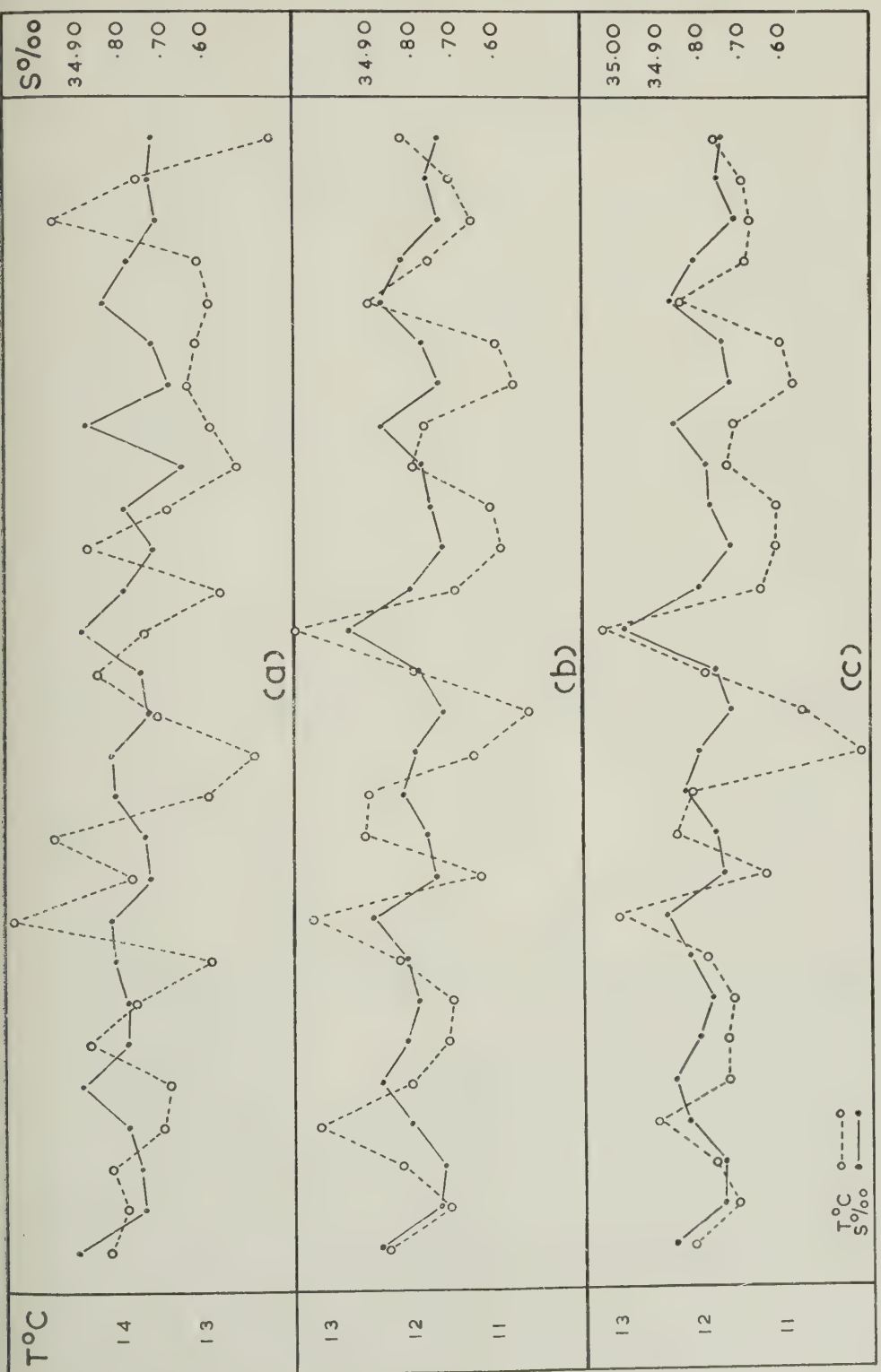

PLATE 38.—Seasonal variation of temperature and salinity for the coastal area at (*a*) 0 metres, (*b*) 20 metres, and (*c*) 0–50 metres.

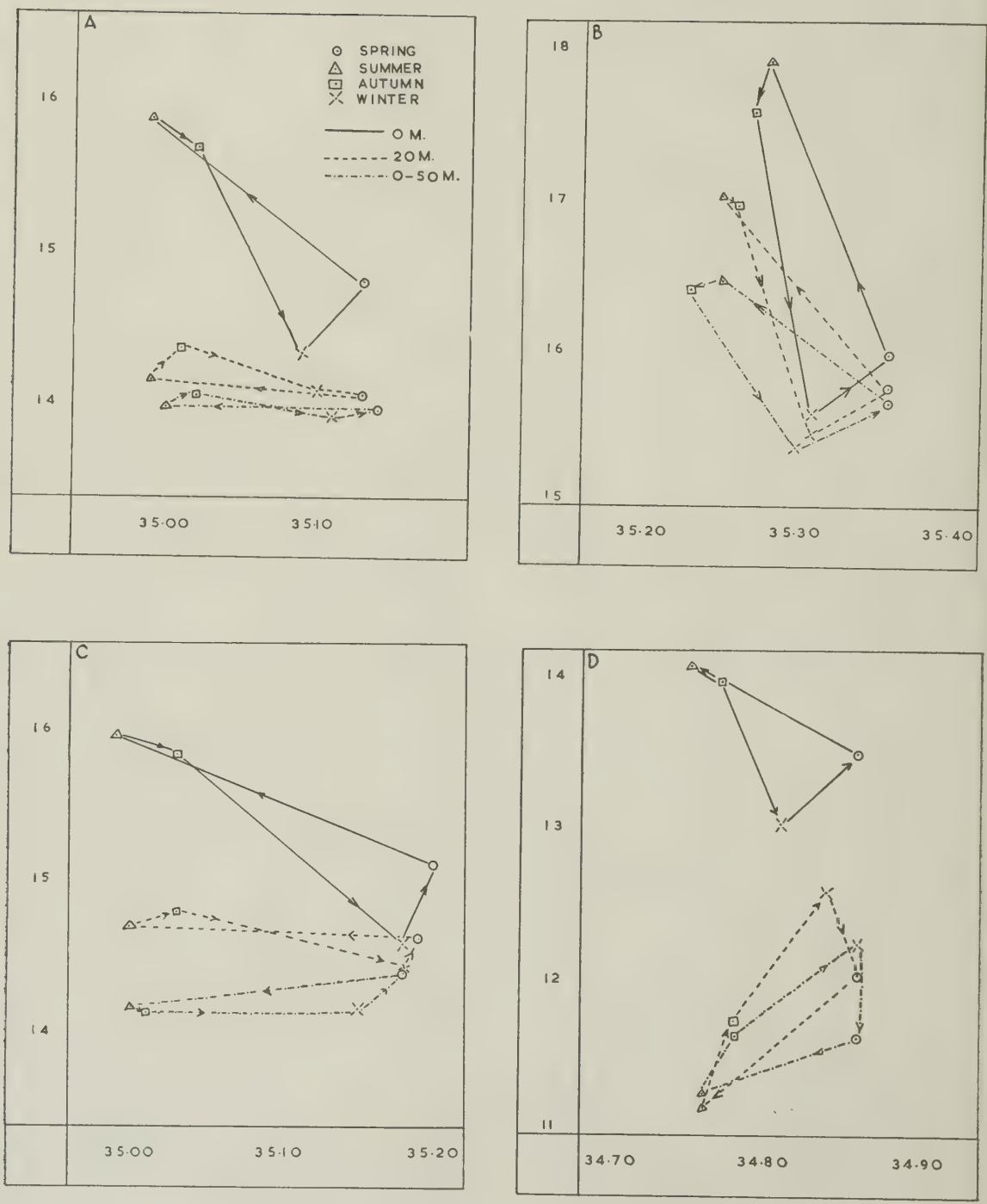

PLATE 39.—Seven years' average seasonal variation of T–S values for the (A) whole area, (B) outer area, (C) intermediate area, and (D) coastal area.

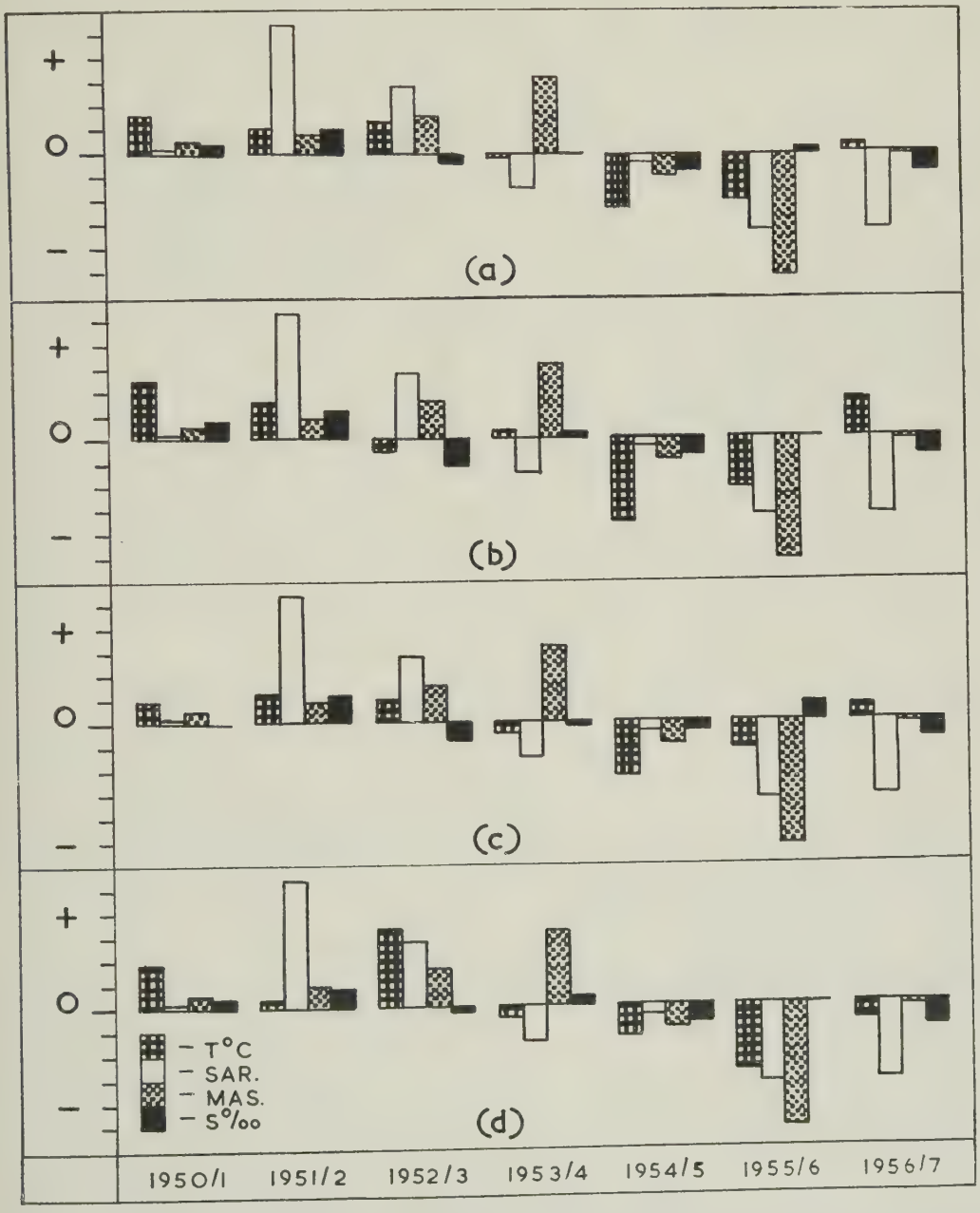

PLATE 40.—Comparison of the annual deviation of surface temperature (T°C) and salinity (S°/$_{oo}$) for the (*a*) whole area, (*b*) outer area, (*c*) intermediate area, (*d*) coastal area with the deviation of the annual catch of pilchards (SAR) and maasbanker (MAS) from their respective averages. Vertical units represent 0·20°C, 0·05°/$_{oo}$ S, and 10,000 tons catch for both the pilchard and maasbanker.

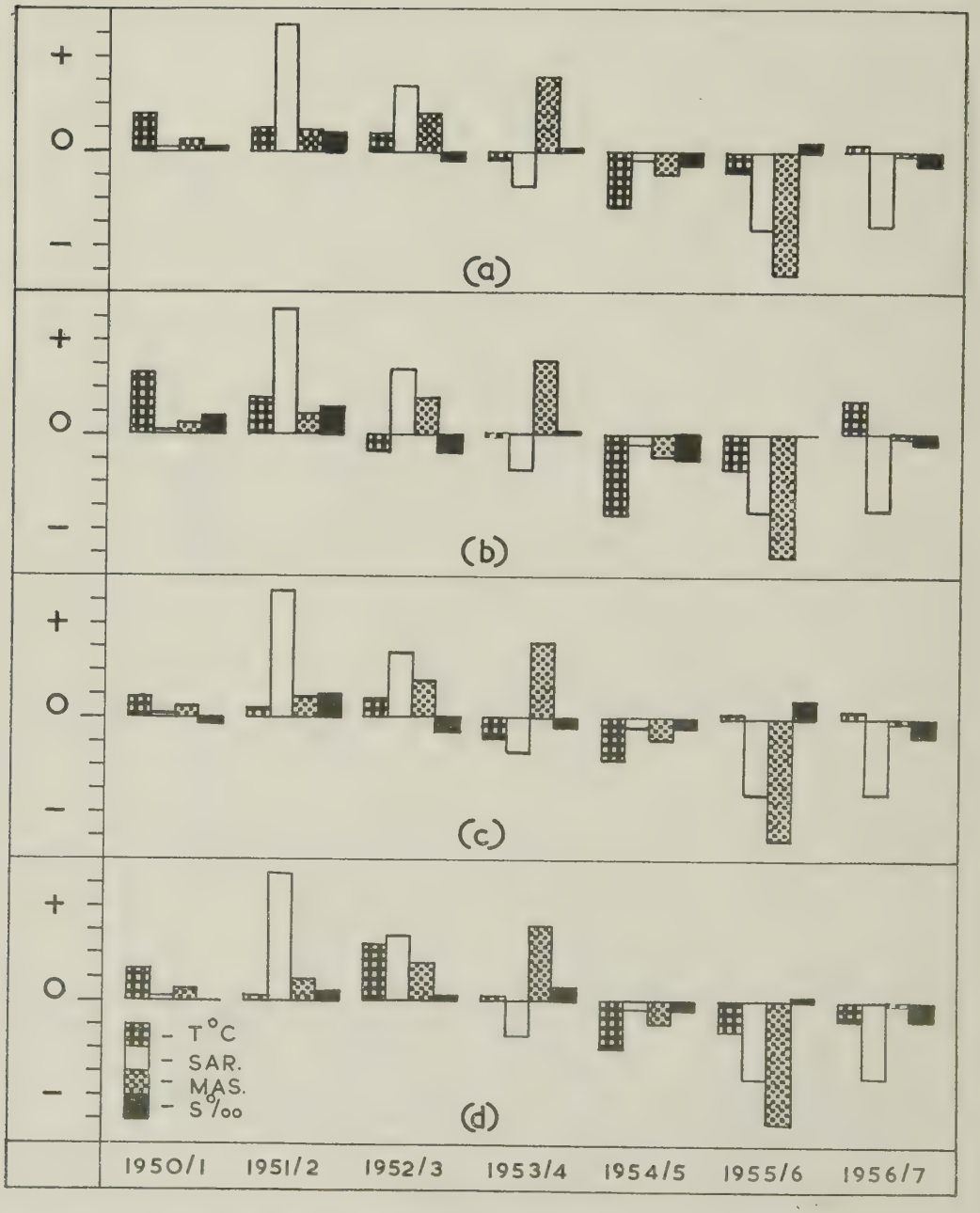

PLATE 41.—Comparison of the annual deviation of 0–50 metres temperature (T°C) and salinity (S°/$_{oo}$) of the (*a*) whole area, (*b*) outer area, (*c*) intermediate area, and (*d*) coastal area with the deviations of the annual pilchard catch (SAR) and maasbanker catch (MAS) from their respective averages. Vertical units represent 0·20°C, 0·05°/$_{oo}$ S, and 10,000 tons of catch for both the pilchard and maasbanker.

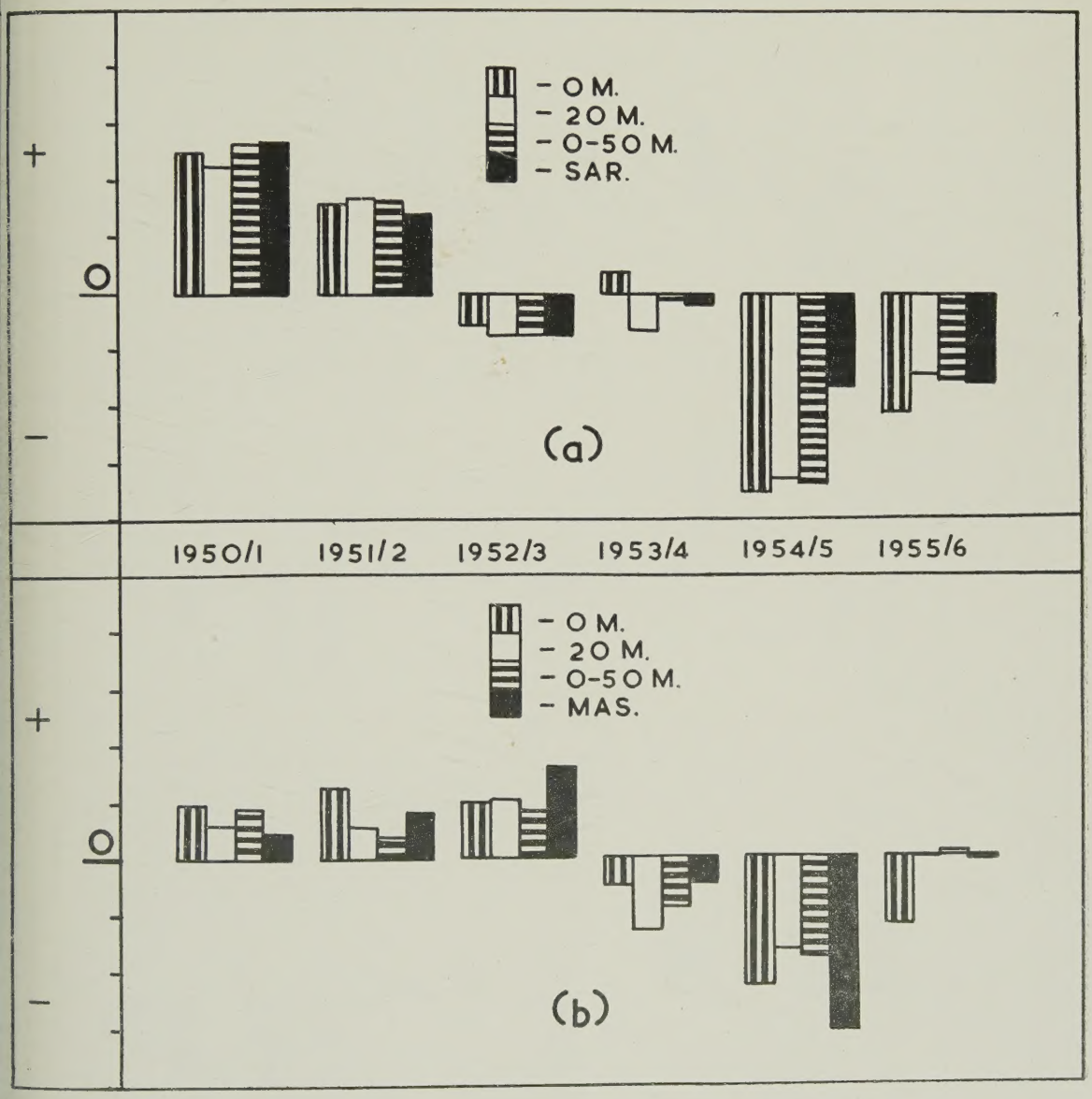

PLATE 42.—(*a*) Comparison of the annual deviation of the 0, 20 and 0–50 metres temperature of the outer area with the deviation of the annual pilchard catch (SAR) made in the following year, from their respective averages. Vertical units represent 0·20°C and 20,000 tons of pilchard catch.

(*b*) Comparison of the annual deviation of the 0, 20 and 0–50 metres temperature of the intermediate area with the deviation of the annual maasbanker catch (MAS) made in the following year, from their respective averages. Vertical units represent 0·20°C and 20,000 tons of maasbanker catch.

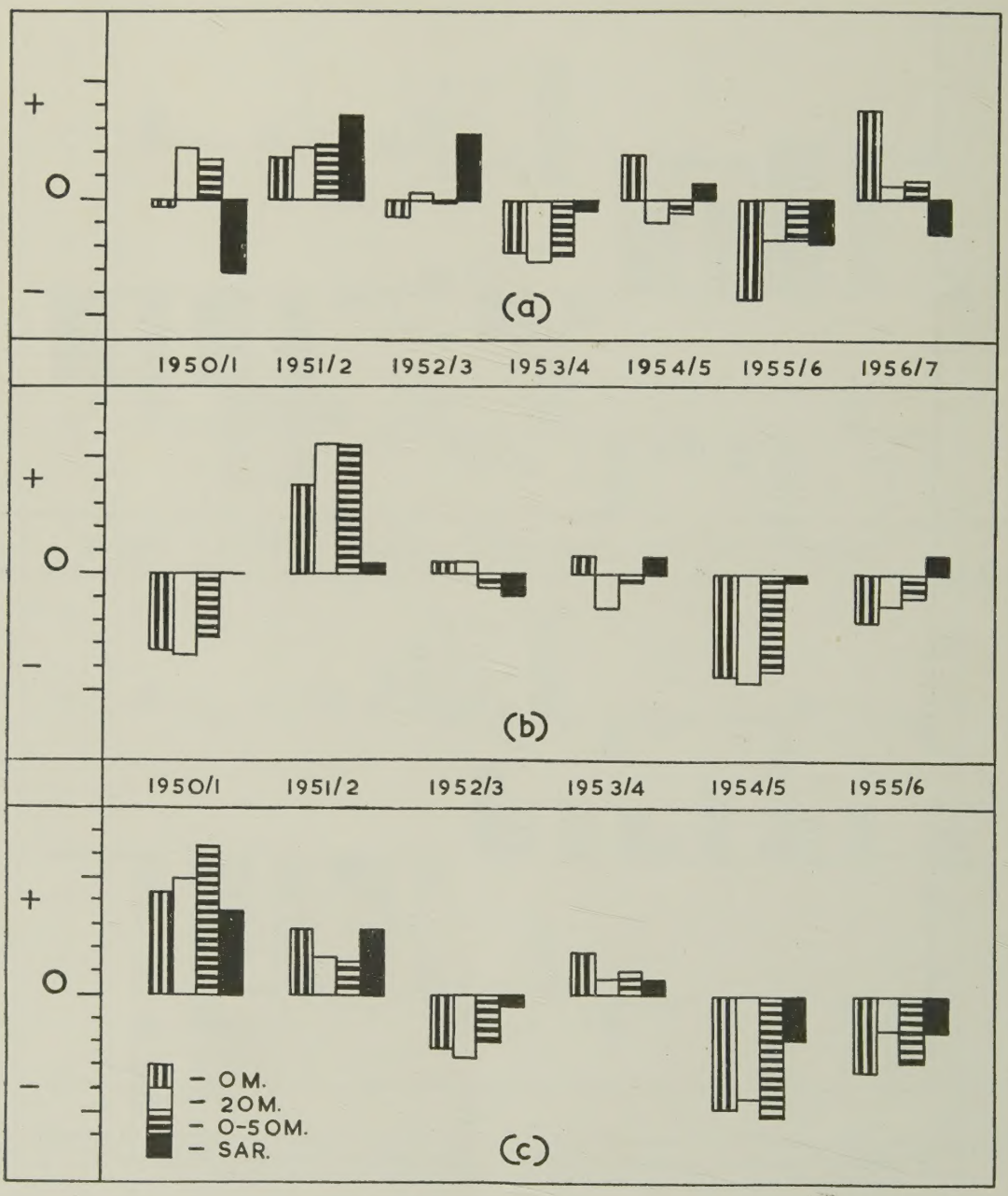

PLATE 43.—(*a*) Deviation of temperature at 0, 20 and 0–50 metres in the coastal area during summer compared with the deviation of the autumn catch of pilchard (SAR) from average in the same commercial year. (*b*) and (*c*) Deviation of the temperature at 0, 20 and 0–50 metres in the outer area during (*b*) summer (*c*) autumn, from average compared with the deviation from average of the (*b*) summer catch and (*c*) autumn catch of pilchard (SAR) in (*b*) the summer and (*c*) the autumn of the following commercial year.